

THE ANIMAL WORLD OF THE MANGAIANS



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ABSTRACT

This thesis is an ethnozoological study concerned with the role of animals in the life and worldview of a Polynesian community. It describes the categorisation of animals, and knowledge and beliefs concerning animals, among the people of Mangaia, Southern Cook Islands. Introductory material concerning theoretical approaches to animal classification and symbolism and providing background information on natural environment, history, and ethnography is followed by discussion of some basic features of Mangaian talk about animals, including the applications of major category terms.

Four central chapters provide extended accounts of Mangaian categories of fish, marine invertebrates, birds and land mammals, and terrestrial small-life (principally lizards and lesser arthropods). They also describe human interactions with animals of each group, giving brief accounts of the fishing, hunting, and food-collecting practices of both men and women. A subsequent chapter deals with the use of animals as food.

Consideration is also given to the role of animals in spirit-omen beliefs, both in their attenuated modern form and in relation to traditional religion - the Mangaian manifestation of Polynesian 'totemism'. A number of mythical accounts concerning animals are demonstrated to reflect aspects of traditional social structure.

The main theoretical interests, in the description of classificatory structures and in the principles governing the selection of 'totemic' or otherwise ritually important species, are given fuller discussion in the final section. In the light of the Mangaian data, a critical assessment is made of strict taxonomic models of folk classification with some consideration of alternative conceptions, including, in respect of category-storage models, some recent approaches from cognitive psychology. It is argued that the spirit-omen animals of Mangaia have never formed a true totemic set and, the relevance of various approaches to 'totemic' having been assessed, that the selection of most is best understood in relation to the requirements for the fulfilment of the spirit-omen function.

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TABLE OF CONTENTS

	Page
ABSTRACT	2
ACKNOWLEDGEMENTS	3
LIST OF TABLES	9
LIST OF FIGURES	9
A Note on the Manganian Language and the Representation of Manganian Words	10
 Chapter	
1. INTRODUCTION	11
Some issues in the study of folk classification	11
Polynesian 'totemism' and animal symbolism	24
The nature of my research	35
2. THE MANGAIAN BACKGROUND	40
Topography	40
The natural environment	42
Animal life	46
Historical and ethnographic background	57
3. TALKING ABOUT ANIMALS.....	74
The major categories	75
External influences on terminology and categorisation in the post-contact period	86
The nature of talk about animals	96
4. FISHING 1: INTRODUCTION, FISH AND MEN'S FISHING	100
<u>Tautai a te 'uitupuna</u> - Fishing of the ancestors	103
Organisation and ritual	103
Changes in fishing equipment	110

Chapter	Page
Men's fishing and sea fish	113
Line-fishing techniques	113
Spear-fishing techniques	115
Net-fishing techniques	116
Fish-poisoning techniques	117
Other techniques	118
Mangaian sea fish categories	120
Mangaika_(catalogue of categories)	123
Mangaian turtle, eel, and fresh-water fish categories	186
Marginal <u>Mangaika</u> (catalogue of categories)	187
Broader category relationships and general comment	194
Summary of categories	198
5. FISHING 2: WOMEN 'S FISHING, MARINE INVERTEBRATES	
AND THEIR TERRESTRIAL AND AQUATIC RELATIONS	211
Echinoderms	213
The sea-cucumbers (catalogue of categories)	213
The sea-urchins (catalogue of categories)	216
The starfish and brittle stars (catalogue of categories) .	218
Molluscs	219
The shelled marine gastropods and bivalves	
(catalogue of categories)	220
The sea-slugs and sea-hares	
(catalogue of categories)	229
Terrestrial and fresh-water gastropods, snails, slugs,	
and their associates (catalogue of categories)	230
The octopus and squid (catalogue of categories)	232

Chapter	Page
Crustaceans	234
The true crabs - <u>Karai'i</u> (catalogue of categories)	234
Hermit crabs and coconut crabs - <u>Unga</u> (catalogue of categories)	239
Lobsters, shrimps, and prawns - <u>Koura</u> (catalogue of categories)	241
Marine invertebrates of minor importance (catalogue of categories)	243
The collection of invertebrates	246
Broader category relationships and general comment	250
Summary of categories	253
6. THE BIRDS AND LAND ANIMALS	258
The birds	258
<u>Manu rere</u> (catalogue of categories)	260
The rodents - <u>Kiore</u> (catalogue of categories)	276
Domesticated animals - <u>Manu 'angai</u> (catalogue of categories)	279
Broader category relationships and general comment	283
Summary of categories	286
7. MANGAIA'S SMALL-LIFE	288
The land reptiles (catalogue of categories)	288
Insects (catalogue of categories)	290
Arachnids (catalogue of categories)	309
Myriapods (catalogue of categories)	311
Worms: terrestrial and parasitic (catalogue of categories).	312
Broader category relationships and general comment	313
Summary of categories	319

Chapter	Page
8. ANIMALS AS FOOD	322
The edible, the inedible, and the preferred -	
The choice of animals for food	325
Mammals	325
Birds	327
Reptiles	329
Fish	329
Echinoderms	333
Crustaceans	335
Other arthropods	337
Molluscs	337
Worms	338
General observations	338
9. SIGNS, OMENS, AND SPIRITS	342
Birds	348
Lizards	350
Fish	351
The small arthropods	351
The choice of spirit-animals	356
10. ANIMALS IN MYTH AND 'TOTEMISM'	367
11. SOME CONCLUSIONS	406
Issues of classification	406
Issues of symbolism – Manganian 'totemism'	455
APPENDICES	484
1. Systematic listing and index	484
2. Manganian terminology for parts of the animal body	517
3. The traditional Manganian calendar	520

APPENDICES	Page
4. Some animal metaphors	525
5. Some further theoretical and methodological considerations	533
BIBLIOGRAPHY	560

LIST OF TABLES

Table	Page
1. Attributes of Major Spirit and Omen Animals	364
2. Major <u>Atua</u> and Their Material Representations	379

LIST OF FIGURES

Figure	Page
1. Mangaia Island: Cross-section	42
2. Mangaia	43
3. 1976 Mangaian Population Pyramid	68
4. Mythical Genealogy of the First Three Generations of Beings	367
5. Two Conceptions of the Island of Mangaia	
The Concentric Viewpoint – Radial or Segmental Viewpoint	382
6. Mangaian Categories of Serranidae and Cirrhitidae:	
Venn Diagram	546

A Note on Manganian Language and the Representation of Manganian words

The language of Mangaia belongs to the Central Eastern Polynesian group of languages. Its grammar and phonology are very similar to those of other Southern Cook Islands dialects. Manganian may be considered a dialect of what is sometimes referred to as Cook Islands Maori. It is, however, the dialect of Rarotonga that has come to be regarded as the standard for Cook Islands Maori.

In all the Southern Group languages, five vowel phonemes are recognised - /a/, /e/, /i/, /o/, /u/. These may be contrasted as either long or short. To these may be added the nine consonant phonemes — the stops, /p/, /t/, /k/, ʻ/ (glottal stop); the nasals, /m/, /n/, /ŋ/; a liquid, /r/; and a fricative, /v/. However, much of the printed material published in the Cook Islands indicates neither the vowel length nor the presence of the glottal stop. In the absence of a standardised representation, I have adopted the compromise (also adopted by Mark, 1976) of showing the glottal stop ʻ/ but not attempting the more difficult task of assessing and indicating vowel length.

In general, the number of a common noun is indicated by the form of the preceding definitive. When using a Manganian noun as a plural in an English sentence, I have added an 's' only where its omission would cause real ambiguity.

CHAPTER 1

INTRODUCTION

The aim of this thesis is to examine the role of animals in the life and worldview of a Polynesian community, inhabitants of the small Island of Mangaia in the Southern Cook Islands. To this end it will consider the local categorisation of animals, the practical interactions of Mangaians with animals (in fishing, hunting, collecting, etc.), and the symbolic roles in which animals are cast. This study is founded upon my interest in the problems in the description of folk classification, and in the question of why particular animal species are selected for ritual or mystical importance (especially in the case of Polynesian 'totemism'). The descriptive heart of the thesis necessarily reflects upon issues in these areas. The first task of this introduction is, then, to offer some background materials in these two strands of inquiry.

Some Issues in the Study of Folk Classification

The discussion here will be largely restricted to two central and closely related issues, the structure attributable to folk biological classifications and the correspondence of these classifications with those of western science. These issues have been basic to much of the writing in ethnozoology.

From the earliest days of ethnosience, the model of a tree-structure, the taxonomic hierarchy of class inclusion, has played a major role in the study of folk classification and cross-cultural cognition. In his article 'Taxonomy and Semantic Contrast', Paul Kay

(1971:868-72) gave a formal definition to the notion of taxonomy commonly in use. A taxonomy, he says, is a taxonomic structure the nodes of which are labelled. Simplifying a little, the significant features of a taxonomic structure are given as follows:

1. It is composed of a finite set of taxa (non-empty sets) in conjunction with....
2. ...a relation of the strict inclusion of sets (producing a hierarchy).
3. There is one taxon which includes all others — a unique beginner.
4. Taxa strictly included by a taxon of immediately superior level are a perfect partition of that taxon. That is, when a set is divided into sub-sets, each member of the original set is placed in exactly one sub-set.

From this it is clear that if any two taxa have members in common then one strictly includes the other. In this model, mutual exclusion or strict inclusion are the only possibilities.

Two other definitions should be noted, firstly, a 'terminal taxon' is simply a taxon which includes no other. In logic, this is sufficient to define the lowest limits of each branch of the taxonomy. But, it should be remembered that this sufficiency depends upon the assumption of the pre-existence of well-defined taxa. The definition may not be as uncontroversial as it, at first, appears. Secondly, a 'contrast set' is the set of all taxa included by one taxon in the immediately superior level of the taxonomy.

Contrast sets have been of particular significance in relation to the componential analysis much used in conjunction with a view of taxonomies as lexical/semantic structures. Emphasis has been placed upon the identification of attributes, components of meaning, which

differentiate items of a contrast set and which are successively refined descending from level to level within the taxonomy. Such taxonomic models are closely related to the Linnaean classifications of western scientific biology. The logic is Aristotelian; taxa are defined by criterial attributes. This has an appealing simplicity which is shared by the logic of the transitivity of the inclusion relation linking the various taxonomic levels. If A is included by B, and B by C, then A is included by C. Of the variety of relations considered by semantic field theorists, the taxonomic inclusion relation has consistently seemed the most readily explicable, and that for which the structural constraints could most readily be defined.

In the U.S.A, over the last fifteen years, Berlin, Breedlove, and Raven have been at the forefront of research into folk biological classifications. For present purposes, brief mention will be made of three aspects of their work: – 1) the notion of covert categories, 2) ideas relating to the ranking of levels within a taxonomy, and 3) the concept of the over-and under-differentiation of folk taxa in relation to the diversity of scientifically recognised organisms.

With the development of ethnoscience, questions began to be asked as to the validity of restricting its descriptions to labelled categories. It began to be better appreciated that groupings, the existence of which was not reflected in terminology, could be of major importance in the organisation of folk biological domains. Berlin, Breedlove, and Raven (1968), studying Tzeltal ethnobotany, discovered no general term for 'plant', no unique beginner for a complete taxonomy of plants. Yet, the diversified vocabulary relating particularly to the plant world was a factor suggesting that plants and animals were divided into two unlabelled categories. A number of tests were used to check for the existence of such 'covert categories'.

These included sorting tasks and triad tests on lexical items associated with lower order categories. The results gave support to the contention that there were a number of cognitively significant covert categories within Tzeltal plant classification. This conception of taxa without labels became widely accepted in the study of folk biology.

Berlin, Breedlove, and Raven have identified six potentially universal ethnobiological category types occurring at different levels in a taxonomy. Below the 'unique beginner' are 'life-forms', followed by 'intermediate' taxa which are partitioned into 'generics'. The 'generics' occupy the level immediately superior to 'specifics', which are, in turn, immediately superior to 'varietals'. The category types are differentiated by the forms of the lexemes associated with them and/or by their structural position (see Berlin, Breedlove, and Raven, 1973 and 1974). Of particular note are 'generic taxa'. These frequently fall immediately within a 'life-form' such as 'tree' or 'fish', though an 'intermediate' (quite possibly covert) may intervene. Some aberrant 'unaffiliated generics' may be immediately preceded by a unique beginner' - as 'cactus' or 'bamboo' are immediately preceded by 'plant'. Generics have as their labels 'primary lexemes', which are usually semantically unitary 'single-word' terms such as 'oak', 'osprey' or 'wrasse'. Generic taxa are claimed to be the most numerous within a taxonomy and, most importantly, to form its basic elements or core. They are claimed to 'partition the domain of individuals in the way that corresponds to the most obvious discontinuities in nature, forming a subset of taxonomic categories which are the most obvious, natural, and frequently employed' (Kay, 1971).

The issue of the over- and under-differentiation of categories arose in Berlin, Breedlove, and Raven's (1966) paper 'Taxonomies and Biological Classification'. There, 200 Tzeltal plant categories were

compared with the scientific classification of their member plants. Those minimal categories (terminal taxa) encompassing two or more scientific species were dubbed 'under-differentiated', those subdividing a single species, 'over-differentiated'. The overall pattern was related by the authors to the cultural significance of the items concerned, culturally important plants, such as maize, being over-differentiated, those of minimal importance being under-differentiated. The different emphases of the two classifications they related to the distinction in biological sciences between 'special purpose' and 'general purpose' classifications. A 'general' classification is logically natural, class members sharing a great number of attributes. 'Special' classifications focus upon the sharing of a smaller number of attributes which are of a particular interest in connection with a given purpose. Unlike the 'general' form they are designed in relation to specific ends. Berlin and his associates suggested that, whereas scientific biological classifications were usually 'general', folk classifications were 'special', developing highest predictive value with respect to particular uses.

These contentions were soon challenged by Ralph Bulmer (1970) on the basis of his study of the ethnozoology of the Kalam. Bulmer has argued for the essential 'naturalness' of the minimal units of folk classifications, a naturalness which would not accord with a special classification, He has proposed that there are..

...certain important lower order categories which are seen as 'objective' by the users of the classification and which are the smallest logically natural units, defined by multiple criteria, by a complex system of definitions, and not just marked off from their congeners by a single defining category: and that bear, in the majority of instances, some meaningful relation to the objective unities and discontinuities in nature.
(Bulmer, 1970:1072)

These are his 'speciemens', minimal consistently named units, for the most part terminal taxa. Bulmer has also argued for the objective reality of species, quoting such species-oriented biologists as G.G. Simpson. About the findings concerning the failures of correspondence between certain Tzeltal and scientific plant taxa, he raises a number of questions. Could some over-differentiation reflect objective morphological diversity induced through prolonged cultivation? How many under-differentiated taxa include species distinguished by fine criteria not readily observable? To what extent do the Tzeltal recognise that their minimal named categories are internally differentiated? The Kalam, he says, are well aware of discontinuities below the level of their terminal taxa.

Bulmer contends that the vast majority of taxa fall within a 'general' classification. Binary oppositions may play a role in producing Identification keys for categories, but the categories are not created through them. The categories arise, it is argued, from the recognition of large numbers of morphological, ecological, and behavioural characteristics, only a few of which can be elicited verbally. Exploitation of the natural environment will require biologically 'realistic' classification on the basis of multiple attributes. The ability to deal with such richness of attributes is reflected in the instantaneous recognition of organisms.

Berlin, Breedlove, and Raven have largely conceded this point, writing:

As Bulmer has so cogently argued, identification and placement of a particular specimen in some culturally recognised class is often instantaneous and basically one of overall pattern (or undifferentiated gestalt). (Berlin, Breedlove and Raven, 1974:154-5)

However, they go on to say that they continue to regard the discovery of the most important characteristics recognised as pertaining to particular categories of organisms as a desirable aim of research.

There is, evidently, a certain division of interests between investigators. The American approach, despite its interest in comparisons with scientific classifications, has substantial roots in linguistic traditions, in which the derivation of meaning and its attribution to categories was of major importance. For writers such as Oswald Werner, taxonomies are used specifically as part of the analysis of lexico-semantic fields. There is an undercurrent of interest in the intension of category labels in the work of Berlin and his colleagues. Bulmer, on the other hand, is oriented towards the zoological. He is especially concerned with the derivation of categories from experience of the world and constraints upon this derivation. The bias is extensional.

Clearly, there are affinities between Bulmer's 'speciemes' and Berlin, Breedlove, and Raven's 'folk generics'. Both belong to privileged levels of taxonomy. Bulmer has stressed the objective constraints of nature in determining basic units. Berlin et al. have stressed the psychological salience of generics suggested by the early learning of 'generic' terms and their status as the most commonly referred to groupings. However, it should be remembered that 'speciemes' and 'generics' do not necessarily coincide. The former are generally identified with terminal taxa, whereas 'generics' may appear one or two levels above the lowest level of a taxonomy.

More recently, doubts have been raised as to the validity of strict taxonomic models of folk classification. Some important criticisms have come from Eugene Hunn (1976 and 1977). He echoes Bulmer in pointing out that the axiomatic treatment of taxonomic structure says

nothing about the generation of categories or the allocation of organisms to categories. Furthermore, semantic analysis of criterial features cannot suffice to explain concept formation. Hunn proposes that basic folk biological taxa are semantic primitives derived by induction from the assessment of overall similarity and difference on the basis of large numbers of perceptible morphological and behavioural characteristics of organisms.

Covert categories, Hunn suggests, may not have the well-defined boundaries necessary for them to be fitted into a strict taxonomic system. Many seem to be formed as chains with horizontal links of similarity and difference between the members of a contrast set. Such horizontal relationships are non-transitive, and a fundamental conflict may exist between transitive taxonomic relations of inclusion and these similarity and difference relations. All judgments of similarity (as opposed to equivalence) are difficult to deal with in terms of taxonomies of the type described by Kay.

A further issue raised in Hunn's work is that of the patchy nature of many folk taxonomies. Often, in a set of related organisms referred to by a single term, a few will be referred to a labelled lower order taxon while the majority will always be lumped under the more general term. Uncommon or unimportant organisms may be identified only in terms of broader categories - an uncommon plant, for instance, might be referred to as 'some kind of tree' and, not further specified. In such cases, a superordinate taxon is not exhaustively partitioned by the contrast set it immediately includes. Not all the entities coming within the scope of a classification will necessarily be classified at all ranks of its structure. What Hunn describes as 'empty regions of classification space' may occur where the overt categorisation of a set

of organisms, as it were, 'stops short' at a particular level of taxonomy.

Cross-cutting of categories and problems of non-transitivity make it difficult that strict set inclusion is basic to folk classification. Non-transitivity of inclusion is not an unfamiliar feature of our own categorising. A bath-chair is a kind of chair. A chair is a kind of furniture. But is a bath-chair a kind of furniture? It is not surprising that such non-transitivities also appear in folk biology. Hunn (1976) proposes that they arise from different processes of category formation. Taxa above the 'generic' level tend to be derived by deductive logic from a small set of abstract features, usually after a process of attribute reduction. Lower order categories are largely inductive, configurational recoding (which establishes the expectancy of the co-occurrence of features) having generated a gestalt or concrete feature. These notions of category formation are derived from the work of the psychologists Bruner, Goodnow, and Austin (1956). From such assumptions, it follows that a deductively derived category need not include the whole of an inductive category. When it does not, transitivity will break down.

Hunn's general model of inductive classification concerns the cluster analysis of 'percepts' of organisms in a classification space. The similarity of 'percepts' is reflected by the proximity of the points representing them in the classification space. Distinct clusters and sub-clusters emerge. The minimal requirement for the inductive recognition of a taxon is defined in terms of relative proximities (1976:518). The logic of this model allows all the axioms of Kay's (1971) taxonomic model to stand except that of perfect partition. That exclusion means that the patchy nature of classifications need not pose a problem. The gaps appearing at certain levels of the taxonomy

are represented in classification space where the minimum requirement for the inductive recognition of a taxon has not been met. Obvious sub-clusters do not appear. Covert categories can also be effectively treated in this model, being apparent as clusters of percepts or clusters of clusters.

Another critic of taxonomic models is Robert Randall. In his article 'How Tall is a Taxonomic Tree? Some Evidence for Dwarfism' (Randall, 1976) he also focuses on the problem of non-transitivity, using instances of non-transitivities in folk classification to argue against the direct storage of large taxonomic trees in memory. In strict taxonomy one moves from direct to indirect precedence relations by use of transitive logic. That is, one knows that the purple wrasse is a fish because the purple wrasse is a kind of wrasse, and a wrasse is a fish. If, as is evident, there are cases of non-transitivity, how is the information in the taxonomy to be accessed? Randall believes that, rather than working out complicated modifications of the transitivity hypothesis, it is more profitable to abandon the notion of extensive taxonomic trees be consigned to memory. Rather, classification schema are to be seen as constructions upon the recalled perceptual characteristics of organisms.

Randall proposes two possible methods of classifying by the recall of perceptual features. The first is by comparison with some typical image. A purple wrasse would, then, be declared a fish by virtue of its similarity to the memorised configurational image of a 'typical fish'. Alternatively, there may be a direct association in memory between a category and its perceptual characteristics. In the memory, 'purple wrasse' might already be associated with the configurations which are 'fish-ness' and 'wrasse-ness'. There may also be association with characteristics relating to such things as use and ecozone location. In

either of these two views of the processes of classification, taxonomic trees would not be lying in the memory waiting to be activated.

Instead, they are seen as the result of classifying activity, drawing upon the stored images and associations.

Randall concludes that:

The most important classification problem routinely facing intelligent humans is to operate adequately in a physically demanding, complex and often dangerous socioecological environment. Doing this does not involve constructing taxonomic trees, but rather, in a particular situation, selecting a contrast set of characteristics which is both sufficiently specific to achieve a practical and safe result and sufficiently general to accomplish one's purpose efficiently.....it is in the mechanism of choice and in the historical context of the choice that we must look for an explanation of classification.

(Randall, 1976:552)

Classifications are not merely passive reflections on nature but do something in the context of different activities and environments.

Recent work has developed the notion of graded category membership. In cognitive psychology, Rosch, Mervis, and their associates have sought to demonstrate experimentally the importance of analog categories. Their evidence supports the view that categories may be ordered by family resemblances, with a chain of members being linked by overlapping attributes shared with their immediate neighbours, rather than being based on criterial features shared by all members. This is obviously analogous to the 'polythetic classification' of numerical taxonomists which has been discussed, in relation to anthropological categorising, by Needham (1975). The type of category described by Rosch and Mervis (1975) may have prototype and non-prototype members. In other words, some members are

better examples of the category to which they belong than others. Rosch and Mervis associate prototypicality with the maximisation of attribute-sharing among some category members. Methods have been sought to characterise classifications involving categories with graded membership and imprecise boundaries. The mathematical theory of fuzzy sets (in which an item can be assigned a set membership value graded from the 0 of exclusion to the 1 of perfect inclusion) has been put forward as a useful tool. Kempton (1978) has applied it to folk categorising, suggesting one significant modification. This is that not only should it be allowed that objects have graded set membership but also that sets are subsets of others to varying degrees. Understandings of this kind enter into the assertion that (the class of) eagles are a better example of (the class of) birds than is (the class of) emus).

The arguments over the naturalness or peculiar psychological salience of certain categories have rolled on. Rosch and associates (Rosch, Mervis, Gray, Johnson and Boyes-Braem, 1976) believe that they have produced experimental evidence for the existence of 'basic objects', information-rich bundles of co-occurring perceptual and functional attributes. But, they also demonstrate that, for their urban subjects, their 'basic level' was closer to Berlin's 'life-forms' than to the supposedly basic 'generics'. They posit the existence of two basic levels. This indeterminacy has been picked up by Dougherty (1978) who questions the absoluteness of the role of the maximum correlation of attributes in determining a basic level of psychological salience. Comparing evidence from the Tzeltal and city-dwelling Californians, Dougherty argues that there is a significant difference in the level of the most fundamental categories (reflected in the different patterns of acquisition) and that these are 'not fixed by nature but vary as a

function of an individual's or culture's degree of interaction with the domain concerned' (Dougherty, 1978:76). The lack of significance of 'generics' for urban Californians might, then, be interpreted in terms of their limited interaction with the natural environment. Ultimately, as with Randall, we are brought back to the important vision of a classification having particular tasks to perform for a particular group of people interacting in a certain degree with a given environment.

It must be affirmed that the aim of this thesis is to provide an account of the animal world of a particular society and not to put forward any universal model of classification. However, as some of the more zealously empiricist numerical taxonomists have had to learn, no separability of theory and description can be assumed. My presentation must relate back to some of the matters just discussed. For instance, it will be noted that taxonomic form has not been adopted as part of my description. After a short period in the field, it became clear that to present the data as a strict taxonomy would prove too much of a strain on the inventive capacities of both my informants and myself. The problems in applying such a model will be pointed up. I hope to be able to make the Manganian categorisation of the animal world comprehensible without unduly disguising its complexity. The final chapter will offer some further discussion of general issues in the approaches to folk categorisation.

The most complete account of the animal world of any community in Oceania must be that provided by Bulmer and his colleagues for the Kalam (Bulmer, 1967 and 1968; Bulmer and Tyler, 1968; Bulmer and Menzies, 1972-3; Bulmer, Menzies and Parker, 1975; etc. - see bibliography). A considerable amount of other ethnozoological work has been conducted in Papua New Guinea, including that of Dwyer (1976a and 1976b) among the Rofaifo of the Central Highlands.

However, there has been comparatively little study of detailed Polynesian ethnozoology. Ottino and Plessis (1972) have provided an account of the classification of parrotfish and wrasses in the Tuamotus. Lemaître (1977) has made an informal application of fuzzy set theory to some Tahitian animal categories. But, there still remains something of an ethnographic gap which, it is hoped, this work may play a small part in filling.

Polynesian 'Totemism' and Animal Symbolism

The subject of animal symbolism in Polynesia has a lengthy ethnographic history. It was in the late nineteenth century that the inquiry was formulated largely in terms of the problem of 'Polynesian totemism'. Early ethnographic writings, particularly those of missionary authors such as John Williams (1837), William Ellis (1829, reprinted 1967), and George Turner (1884) had established the existence of widespread beliefs in special relationships between natural species, spirits, and human individuals or groups. By the time of Tylor's (1899) 'Remarks on Totemism', the ethnographic reports from Oceania had been much discussed. Tylor was critical of theories which sought the origin of all religion in totemic beliefs and strongly objected to the tendency to interpret all ritual behaviour involving animals as totemic. He rejected Frazer's assessment of Samoan materials, in which family and village gods which took on animal form were assumed to be totems. Similarly, he rejected McLennan's view of Fijian tribal deities as evolved totems. Yet, Tylor's own interpretation of the phenomenon as 'animal worship' added little to the understanding of the subject. Ten years later W.H.R. Rivers (1909) was again wholeheartedly embracing the notion of Polynesian totems.

Much of the data relevant to these early debates has been summarised by R. Williamson (1924).

The totemic theme has proved persistent. In 1968 E.S. Craighill Handy reviewed the 'Traces of Totemism in Polynesia'. In that paper he outlines the kino lau 'multiple form', concept of Hawaii, according to which spirit beings assume many forms including those of animals, plants, artefacts, and natural phenomena. Animals are particularly important in acting as family guardians. Handy concludes that kino lau is not true totemism, with the principal emphasis on the relation of totem to social category, but a systematic theory of the relations of animal and vegetable forms to nature gods and spirits. He compares kino lau to similar beliefs found in other parts of Polynesia, such as the ata of Samoa, the aria of the New Zealand Maori, and the omen-giving animal forms of gods in Tonga and the Cook Islands.

However, the definitive comments on Polynesian 'totemic' beliefs are those of Raymond Firth. Firth (1930-1 and 1966) insists that Tikopian totemism can only be understood in relation to the general system of spirit beliefs. The totem and the social group with which it is associated are two corners of a triple relationship. The third element is a spirit being. This spirit exercises control in the social group and can be embodied in the totem. Spirits are also considered to enter human beings or are identified with inanimate objects such as artefacts. In these cases, what is essentially a similar phenomenon may be interpreted as spirit mediumship or possession of 'idols'. Firth maintains that, throughout Polynesia, 'totemism' is closely connected with the powers of spirits and their supposed ability to manifest themselves physically. The respect accorded to natural species is by virtue of their relationship to spirits. But, it may well be the case that, although all members of a species are regarded as

potential spirit carriers, whether a spirit is present in any particular member of that species will be determined by the observation of identifying peculiarities of behaviour. The role of spirit-form or spirit-carrier may also, in some instances, be attributed in the light of later events.

In the aria of the Maori people of New Zealand, Firth (1930-31) sees a case in which deities are assumed to take on material forms, often those of natural species, but where a strong connection with social groupings is not apparent. He points to the instance of lizards feared by many Maori tribes, in the last century, as the visible forms of destructive spirit beings. Here, the animal/spirit relationship assumes a non-totemic form.

In fact, the Maori attitude to lizards has developed a small literature of its own (e.g. Best, 1923; Downes, 1936). Attempts to account for Maori fears of small, harmless New Zealand lizards have largely centred on the 'folk memory of the crocodile' thesis. This claims that anxieties over lizards may be related to their ancestors' fears of the crocodile, which they must have encountered in their tropical homelands (see Skinner, 1963). The persistence of this hypothesis from the last century is something of a damning comment on our lack of knowledge of the principles of symbolic selection. With regard to the choice of animals as totems, Firth writes:

It is a feature of Polynesian totemism that the natural species concerned are generally animals, either land or marine, and that plants, though occasionally included in the list, never predominate. The reason for this preference for animals, it seems to me, lies in the fact that the behaviour of the totem is usually held to give an indication as to the actions or the intentions of the god concerned. Plants, because of their immobility, are not of much interest from this point of view, and

the tendency is for the more mobile species, endowed with locomotion and versatility of movement, and often with other striking characteristics in the matter of shape, colour, ferocity, or peculiar cries, to be represented in greater measure in the list of media which serve as outlet for the supernatural beings.
(Firth, 1930-1:393)

This well-known statement proposes one basic principle of selection in the requirements for the fulfilment of the communicative function related to the omen role of many animal materialisations.

Firth has paid closer attention to the selection problem in certain of his later articles (Firth, 1967 and 1970a). In these, he responds to Claude Lévi-Strauss's (1963) treatment of totemism, including some Tikopian material. While accepting the importance of binary cognitive discriminations in the structure of symbolism, Firth feels that an analysis of Tikopian totemic relations in terms of sets of binary oppositions leaves many unanswered problems. One crucial question that remains is that of why a particular set of items is selected as totemic whereas others, equally capable of being constituted into a set revealing systematic binary discrimination, are not. In looking for an answer, Firth (1970a) focuses attention on what he terms the 'pragmatic' aspect of Tikopian 'totemism'. He suggests, for instance, that 'the arrangement of birds with regard to the Tikopia 'totemic' system depends less on formal considerations of perceived resemblances than upon substantial considerations of the positive, neutral and negative effects of various bird habits upon human activity' (Firth, 1970a:285). The four Tikopian wading birds could be as easily arranged in terms of a binary matrix corresponding to clan divisions as the 'totemic' pigeon, swamp rail, heron, and parakeet are. Firth connects the selection of the latter four for 'totemic' status with

the fact that they compete with man for food. In general, he concludes:

Practical interests do not cover the whole field. But the Tikopia evidence is very clear that the vegetable species involved in the totemic alignment with social groups have been broadly those of primary importance for the food supply, and, that the creatures from the animal world similarly involved have for the most part been of direct interest to human practical affairs as predators, competitors with man, or suggesting some threat to his safety or comfort. (Firth, 1970a:288)

In considering Tikopia attitudes to sea creatures, the assessment of an animal's edibility, its ability to harm man, and sexual suggestiveness seem to be of particular importance (Firth, 1967). Non-food status is positively correlated with both the capacity to harm and the perception of sexual suggestiveness in animal forms. But, it is a 'conceptual' rather than a solely material harm that Firth envisages. Eels and octopus are more avoided and feared than the physically more dangerous shark, which was food for some Tikopia. Firth suggests that the act of appearing spontaneously 'out of element' carries implications of danger. Eel and octopus come onto the reef, and the latter is said to appear on the beach. Stranded whales are also regarded as spirit manifestations. The octopus and eel are also strongly associated with aggressive, male sexuality. Their bodily forms evoke phallic analogies. Spheres of danger are, then, constructed on a variety of principles. Firth's notion of the 'pragmatic' operates at the level of such constructions which are affective as well as intellectual foci.

The relationship of symbolic selection to classification has remained largely undiscussed in connection with Polynesian materials.

As has been mentioned, there is, in any case, a scarcity of data on Polynesian classifications which would permit such discussion. But, clearly, the possibility of direct connections between classificatory position and selection for particular ritual importance cannot be ignored with respect to the Mangaian materials to be presented in this thesis.

The work of Mary Douglas (1966) has drawn the attention of anthropologists to the symbolic potential of taxonomic anomaly and a conception of pollution in terms of 'out of place'. In later refinements of her work (e.g. 1975:276-318) she abandons any suggestion that anomaly necessarily invites aversion and seeks to show that the attitudes adopted to anomaly in different societies, ranging from abomination to veneration, can be better understood in relation to the logical ordering of social behaviour. She suggests that, in a given worldview, the conception of the interface between man and the natural world will bear the imprints of the relationships between the human community and outsiders. Where the social boundary is heavily insulated and cross-boundary exchanges are rejected, natural anomalies may be singled out for abhorrence in their denial of boundaries. Where positive exchange with socially distant persons is possible, then a positive mediating role may be found for anomalies. There is said to be an 'imprinting on nature of the rules and categories which are dominant in social life' (Douglas, 1975:289). This is avowedly in the tradition of Durkheim and Mauss.

The theme of correspondences between rules governing sexual behaviour and those governing the edibility of animal species has appeared in the work of several authors. S.J. Tambiah, for instance, in his paper concerning Thai animal categorisation (Tambiah, 1969), establishes a homology between categories of human beings relevant

to the regulation of sex and marriage and the categories of animals covered by eating rules. Sexual availability and edibility vary along similar scales of proximity. The closest kin, siblings, are bound by strict incest taboos, and there can be no marriage with distant, unknown outsiders. The closest domestic animals, those inside the house, may not be eaten. The distant animals of the forest and monkeys are also deemed inedible or taboo as food. Between the two sets of extremes are the categories within which sex and marriage or, in the case of animals, consumption as food, is appropriate in varying degrees.

Tambiah (1969:452) argues that 'simple deductions from a society's formalized scheme of animal categories will not take us very far unless we unravel the core principles according to which people order the world and the valuations they give to the categories'. In his Thai case, 'the core principles lie in the domain of primary social interests and values connected with the ordering of kin, incest and marriage, and conceptions of social distance'. The problems of classification must be examined against this background.

Expanding upon the ideas of Mary Douglas (1966) and Edmund Leach (1964), Tambiah produces four propositions intended to link animal classification to dietary attitudes and the adoption of certain species as omens or signs.

Proposition 1: an animal that is not placed in an ordered system of major classes receives further signification as ambiguous food. To find out the exact dietary significance given to it, we must investigate to what named major class it is penumbral and what dietary value is given to that class...

Proposition 2: an unaffiliated animal, if it is seen as capable of leaving its location or habitat and invading a location or habitat of primary value to man, will be the focus of strong attitudes

expressed in the form of (1) a food taboo, and (2) a bad omen or inauspicious sign....

Proposition 3: an animal that is placed in a class because it shares certain dominant properties of that class may yet be seen as exceptional or anomalous and therefore ambiguous as food or inedible (even if other members of its class are edible) if it shares one or more characteristics with animals of another class which carries strong values and is inedible...

Proposition 4: an animal that belongs to a class that is edible and. positively valued, if it also shares one or more characteristics with a member of another positively valued and edible class, qualifies as an auspicious and eminently edible animal.

(Tambiah, 1969:449-451)

The first three propositions are supported with Thai examples. The fourth is said to relate to the case of the pangolin, the positive mediator among the Lele of Kasai reported by Douglas (1957). Within these propositions there is a coming together of symbolic categories relating to edibility and social space and those of the folk biological classification.

The degree of integration to be expected among the various classificatory schema of particular cultures remains an issue of debate. Brian Morris (1976) is among those who have questioned the assumptions of Claude Lévi-Strauss (1966) and Mary Douglas (1966) regarding the presence in many 'primitive' societies of over-arching symbolic classifications unifying various classification systems. Morris argues that these authors fail to distinguish practical 'technological' classifications of particular domains from implicit symbolic classifications which organise experience in general. This contrast between symbolic and classification appeared earlier in the writings of Durkheim and Mauss (1963:81-2n). There are simple hunting and

gathering societies, Morris contends, which do not reveal large, systematising symbolic classifications. He has illustrated this from his own study of the Hill Pandaram, indicating that their classification of natural species is basically pragmatic and that there is no simple relation between the 'terminological' (i.e. 'technological' or mundane) classification of animals and dietary categories. Maurice Bloch (1977) has also emphasized the distinction between 'technological' and symbolic classification. Indeed, he has spoken of them in terms of distinct cognitive systems, the concepts of the first being bound to man's need to act in the natural world, the concepts of the second being part of a ritual communication which will reflect the social structure. Bloch proposes that the amount of such ritual communication will vary with the degree of institutionalised hierarchy within a society. Ultimately, the issues of the integration of modes of classification are also the perennially vexed issues of the relation of culture to practical reason.

Returning to the question of the selection of particular organisms for symbolic roles, few people can be in a better position than Ralph Bulmer, with his wide knowledge of Kalam folk biology, to assess the relation between classificatory status and ritual significance. As has been stated, Bulmer argues for the naturalness of the terminal taxa of the Kalam classification of animals and for the importance of objective facts about the world in determining categories. However, he does allow for the influence of 'socio-utilitarian interests'. In discussing why the symbolically important cassowary is not classed with the other birds, he comments:

I would argue that to look for an explanation of the cassowary's special taxonomic status in purely taxonomic

terms, by reference to objective features of its appearance and behaviour alone, could be to miss the point....for me at least, especial taxonomic status' is a function of something broader, a special status in culture, or cosmology, at large. (Bulmer, 1967:19)

or again:

..it is as legitimate to suppose that cassowaries are taxonomically distinguished from birds by the Kalam because of their socio-utilitarian importance, which accords them a unique relationship in Kalam thought to man, as it is to argue that they are accorded special utilitarian importance because of their taxonomic status. I would generalise that those animals which are both of high socio-utilitarian status and have no close objective congeners are likely to be placed in separate primary taxa.
(Bulmer, 1978:14)

So facts of nature and social facts combine in establishing the classificatory position of the cassowary.

Bulmer (1979 and n.d.) has also noted the importance of the nature of the interaction between certain birds and man in establishing these birds' symbolic roles. Among the Kalam, birds that frequently approach man whilst calling, in a manner suggesting a human approach, are generally regarded as representing ghosts. Those approaching rarely, unpredictably, and mysteriously may be seen as witches. This is not a matter of taxonomy.

Nonetheless, Bulmer (1978:14) argues that, in general, 'it is taxonomic salience which predisposes an animal for totemic selection, rather than the reverse'. He proposes that the animals most likely to be marked for ritual significance are those which achieve a taxonomic prominence by virtue of being the largest of the category in which they are placed or otherwise outstanding in that broad category by virtue of

form, colouring, or behaviour. Not all taxonomically prominent animals take on ritual roles, but they form a pool out of which ritually important creatures will be drawn. With regard to the 'social value' of totems Bulmer concludes that:

..as far as the Kalam are concerned,...species accorded special ritual value need neither individually have important direct effects on the well-being of society, nor even individually and directly represent other phenomena or events of importance.... they can equally well be selected as salient representatives of groups of creatures which collectively are of utilitarian or socio—utilitarian importance.
(Bulmer, 1978:14-15)

This he feels to be in accord with Firth's conclusions concerning the 'pragmatic' nature of Polynesian 'totemism' in Tikopia.

Mangaia presents a body of materials which can clearly be viewed as belonging to the Polynesian 'totemic' tradition. With the coming of Christianity, the associations between natural species and the gods linked with the island's tribes was to vanish. However, a considerable amount of information on this 'totemism' is to be found in the works of the missionary author William Wyatt Gill (see bibliography). He provides extensive records of Mangaian myth and historical tradition which are supplemented in the great Maori ethnographer Peter Buck's (1934) account of Mangaian society. Modern tumu korero those knowledgeable in legend and tradition, confirmed and added slightly to the outline provided by Gill and Buck. While the 'totemism' of the old religion must, of necessity, be discussed on the basis of a reconstruction, the belief that spirits may appear in animal form has persisted. The spirits now said to manifest themselves in animals are principally those of the human dead. Similarly, certain creatures continue to be attributed with the function of omen or sign. I would

claim that the general issues of animal symbolism discussed in this section are relevant to the Mangaian ethnography, both past and present.

The Nature of My Research

I conducted research in the Southern Cook Islands between February 1976 and April 1977. An initial period spent on the island of Rarotonga was devoted principally to language-learning and to research in the Cook Islands National Archives. The last ten months of my fieldwork period were spent on Mangaia Island, where I lived in the largest village, Oneroa. The majority of my informant's came from Oneroa's three sub-villages, Tavaenga, Kaumata, and Te Makatea. Material gathered from the island's two other villages revealed minor variations in terminology but conformed broadly with the findings from Oneroa.

Most Mangaians under 65 speak English as a second language. The Mangaian dialect (of Cook Islands Maori) is the language of the home, English the language of secondary education. Over the course of interviewing, I used both languages. In defence of this procedure, it can be said that, as regards to the eliciting of ethnozoological categories, later all-Mangaian interviews revealed no significant differences from earlier interviews conducted in both languages. Initially, I sought a broad outline of folk zoological categories. I asked informants to perform listing tasks in reply to questions of the form "What kinds of mangaika ('fish') are there here in Mangaia?" or "How many kinds of manu rere ('birds') do you know?". I examined the in-built ordering of categories which appeared in such lists and gathered

descriptions of the listed creatures. I also began to accompany Mangaiaans as they went to perform tasks in various parts of the island, obtaining from them identifications of organisms in the natural environment.

Though standard eliciting procedures were used to establish relationships between categories, I also made efforts to break away from a highly formal framework of questioning. Questions of the form "Is X a (kind of) Y?" are easily formulable in Cook Islands Maori as "E Y te X?", but they are not the stuff of everyday conversation about animals. The responses of my informants to this type of question did not always agree with their other usage of category terms (see Ch. 3). I listened to and encouraged broader conversation concerning animal life. Observing fishing and collecting activities, meeting fishing canoes as they came ashore, accompanying those gathering food on the reef, etc., I questioned the participants about their preparations and techniques. We also entered into discussions about catches, and concerning the specimens collected by myself. In the case of fish, in addition to the available specimens, the colour photographs of the Tahitian publication 'Fishes of Polynesia' (Bagnis, Mazellier, Bennett, and Christian, 1974) were used as a basis for discussion. Identifications from these pictures also helped to indicate the probable identities of some of the fish types not seen during my time on Mangaia. It will be made clear when a fish is specified only by such photo identification. In fact, in the light of specimens taken after a Mangaian category had been indicated from a photograph, such identifications seemed generally reliable.

The picture of animal categorisation presented here is a compound one. Though some areas of variation between individuals' accounts are indicated a detailed analysis of this variation would

require further research tailored to this problem. My information was gathered from more than one hundred informants (contacts being established in the course of one hundred household surveys) whose contributions varied greatly. As a firm basis for the discussion of major areas such as tautai tane and tautai va'ine, 'men's fishing' and 'women's fishing', I used a core of fifteen extensive interviews, which included discussion of techniques of exploitation. Any new category to appear in these interviews could then be checked with other informants. Though, in the course of research, I did take advice from local experts, such as the one full-time fisherman, Tangatakino of Tavaenga, their information is not necessarily treated as definitive of the Mangaian conception of the animal world and will be contrasted, in this thesis, with the beliefs of others.

I took approximately 700 colour photographs of specimens, accompanied by measurements and descriptive notes. These were supplemented by a small collection of dried insects, representing 46 species, a collection of mollusc shells, and some examples of echinoderm tests and crustacean exo-skeletons. Large-scale collection and shipment of specimens was not feasible. Clearly, the identifications of species offered here must be assessed in relation to the limited nature of the material on which they are based. Definitive scientific identifications of the Mangaian fauna will require zoological research of a broader scope than any that has yet been attempted in the Cook Islands. However, thanks to the assistance of many sections of the British Museum (Natural History) and other workers, and to my own researches into the available literature on Indo-Pacific ichthyology, I am convinced that this thesis represents a valid preliminary study. The data is sufficient for some comment on the correspondence of scientific and folk zoological categories (see Ch.11),

though this theme will not be pursued in detail. An indication of the basis of identifications will be found with the entries in the systematic listing of Appendix 1.

Correspondence of a specimen with a Manganian category was provisionally accepted after four identifications, as long as it agreed with the recorded descriptions of members of that category. This minimum had to be accepted in view of the fact that many of the specimens recorded were imminently to be converted into family meals. This requirement produced consistent results over a number of identical specimens identified by different informants. Within the main listings of categories, I will note any cases of doubt in informants' identifications. Doubts largely related to less common species. With the repeated identification of the commoner species, a familiarity with the referents of the most used Manganian category terms was soon built up.

During the earlier part of my research, I gathered background information in the household surveys. Appended to these was a group of questions concerning food preferences and aversions which helped to guide research into the assessment of animals as foodstuffs (see Ch. 8). On the other hand, much of the material relating to present-day omen and spirit creatures came out in the course of discussion about animals in themselves. Knowledge of these beliefs proved to be widely distributed, though they now encounter a good deal of scepticism. This is true of spirit beliefs in general. Though informants readily gave information about the wandering spirits, tupapaku few admitted unconditional belief. This is, undoubtedly, partly due to a 'shyness' growing out of the traditional missionary devaluation of 'Maori beliefs'.

As regards traditional Manganian myth, religion, and historical tradition, knowledge is much more narrowly distributed. The knowledge of the younger generation (those under 30) comes largely from school 'Culture' teaching or from seeing, or taking part in, the legend plays presented annually for Gospel Day (the day celebrating the arrival of missionaries on Mangaia) and for culture festivals. The source of these materials is usually one of a fairly small group of tumu korero literally 'sources of tradition', a group of largely elderly men and women many of whom inherited their knowledge from their parents or adoptive parents. The acknowledged tumu korero were brought together some years ago by the Cook Islands Government Culture Division to record Manganian traditions. However, the basis of their knowledge is individual. Among the tumu korero I am particularly grateful for the advice of Ma'arona Kavana, Iviiti, and Tiriamai, and to 'Akaiti Kavana for the loan of his family notebooks. They helped me to get some new perspectives on parts of the work of Gill and Buck (see bibliography) which is the foundation of our knowledge of traditional social structure, myth, and religion.

My research sought to examine the categorisation of animals, and animal-spirit beliefs, against social and natural background. The view of animal categorisation and of the symbolic significance of animals to be presented here is very much founded in the realities of Manganian interactions with their environment.

CHAPTER 2

THE MANGAIAN BACKGROUND

Mangaia is the southernmost of the Southern Cook Islands, its centre lying at approximately 21°49'S, 157°56'W. It is 110 nautical miles ESE of Rarotonga, the administrative and trading centre of the group. Temperature records have not been kept for Mangaia in recent years, but those for other Southern Group islands suggest an annual mean maximum of 26.5°-28.5°C and an annual mean minimum of 20.5-22.5°C. Mean annual rainfall is approximately 77 inches, with the wetter part of the year from December to May. The island has an area of about 20 square miles, with a circumference of 17 miles. The population in 1976 was 1,530, divided between the three villages of Oneroa, Tamarua, and Ivirua.

Topography

The centre of the Island is an eroded dome of basalt, rising to 554 feet. Stream valleys and ridges radiate from the central plateau, Rangimotia. The inner dome of volcanic origin is completely enclosed within a plateau of coral limestone, the makatea. This rises to a height of 180-200 feet above sea level with an average width of about three-quarters of a mile. It is an ancient, raised reef, forming a massive wall between the coast and the interior. The inner edge of the makatea is particularly precipitous, with cliffs dropping up to 150 feet. Steps and steep paths make it possible to pass on foot from the coast to the central part of the Island, chiefly to the areas of the taro swamps.

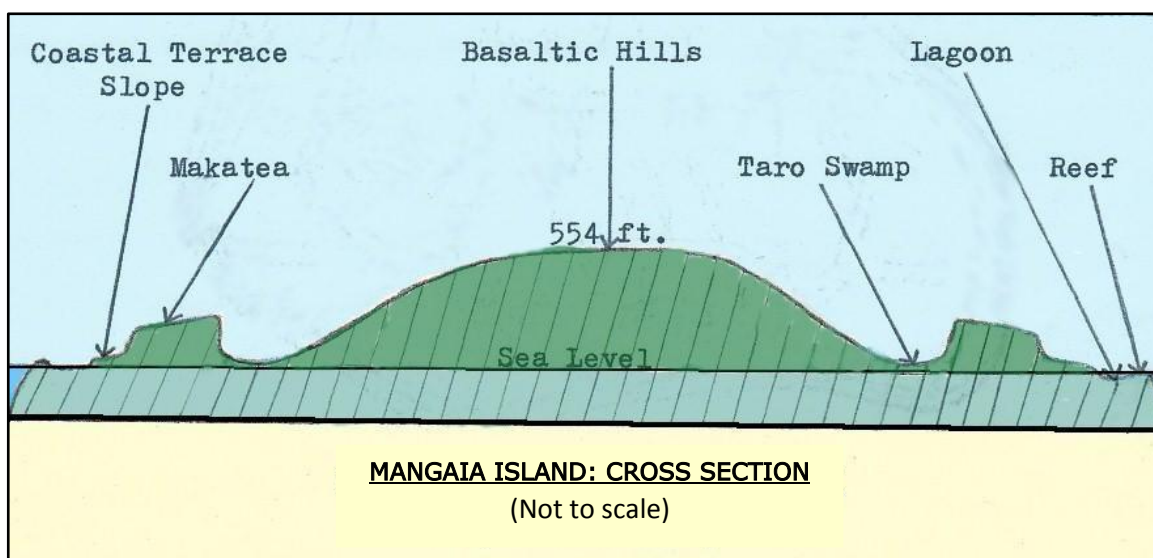
These swamps lie between the scree slopes at the base of the inner edge of the makatea and the lower slopes of the central hills. Seven systems of man-made, wet-field taro terraces extend up stream valleys. Ridges of the basaltic core lie between the streams running into the swamps. In four places these spurs run level onto the makatea plateau, breaking the line of the cliffs. Modern, gravel-surfaced roads make use of these ridges to provide access to the interior.

The surface of the makatea which rises gently towards the inland side, is, in many areas, extremely rugged, with innumerable coralline projections. However, there are many well-established tracks, particularly in the vicinity of the villages. On the outer edge of the plateau, cliffs drop about 65 feet to meet the coastal terrace slope. This slopes gently towards the sea for one to two hundred yards, then dropping more steeply to the inner edge of the reef platform which is 30 to 50 feet lower than the upper edge of the coastal terrace. The modern reef flat ranges between about 80 and 300 yards in width. It is edged, on the side of the open sea, by a ridge some 2 to 3 feet higher and 20 to 30 yards wide. This ridge stands clear of the water at low tides. The flat remains covered by shallow water, except at exceptionally low tides when a few areas become exposed. From this point onwards, the water-covered reef flat will be referred to as 'the lagoon' (Mangaian - roroka) and the raised ridge and its outer slopes as 'the reef' (Mangaian - 'akau'). The outer reef slopes drop away quite rapidly into deep water.

The reef is cut in several places by deep, and usually narrow, channels. The channel at the principal landing place, Avarua, has been greatly enlarged with explosives. In some areas there are deep pools (puna) in the lagoon, just within the reef. On the shoreward edge of

the lagoon, there are a number of places where fresh water wells up into it from drainage channels that pass under the makatea. None of the inland streams reach the coast at surface level. (For topographical background, see: Allen, 1969:3-10; Allen, 1971; Buck, 1934:4-5; Mark, 1976, 42-86; Marshall, 1929.)

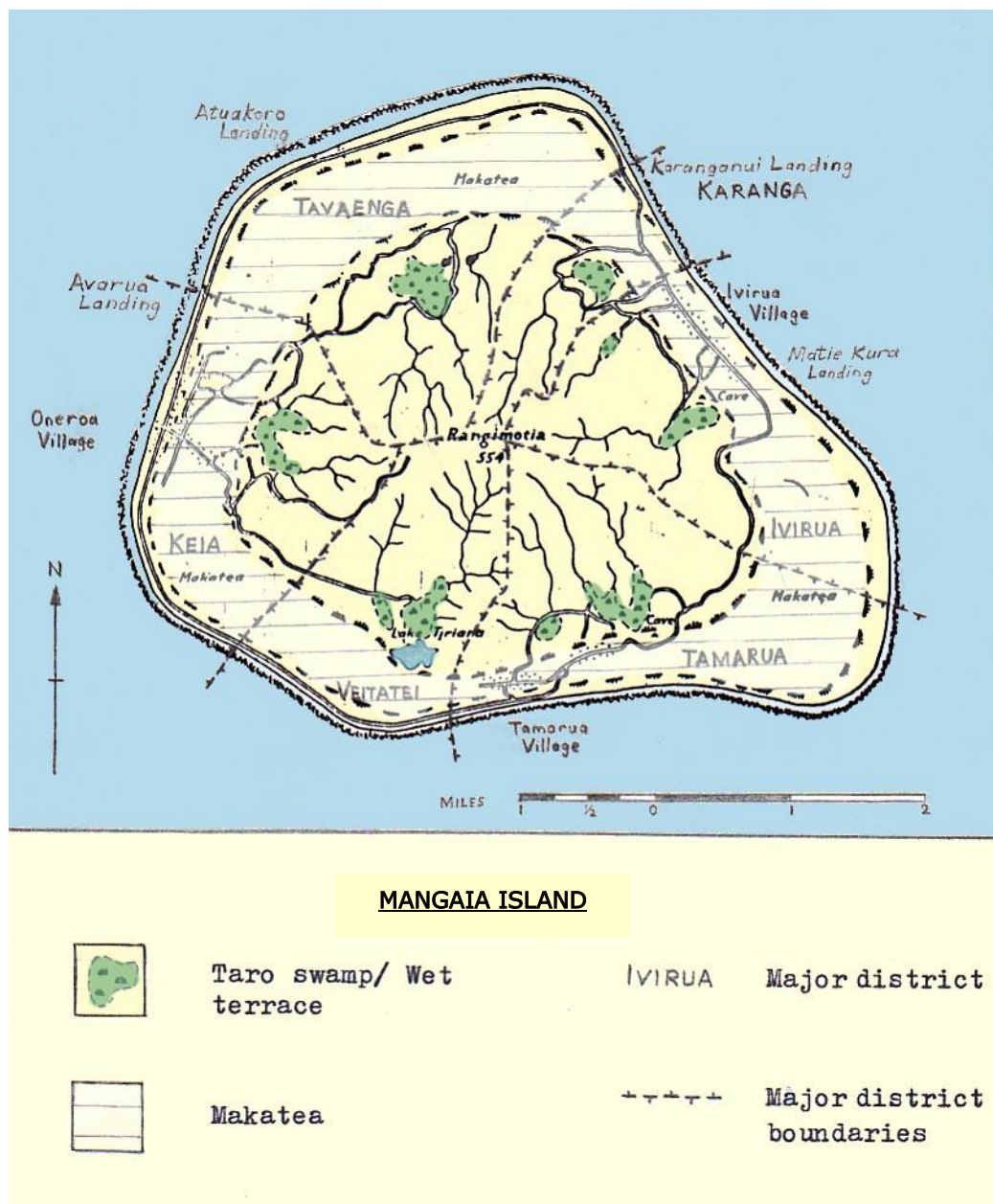
Figure 1:



The Natural Environment

The lateritic soils of the central hills have a distinctive red colour. The upper parts of the hills support grasses, staghorn fern (Gleichenia linearis) and stunted scrub of ironwood (Casuarina equisetifolia) and guava (Psidium guajava). The latter is a nineteenth century introduction which has spread widely. Some of the lower slopes continue this picture of barren scrublands. Others have now become pineapple plantations. Among the sturdy weeds of this area is Tephrosia purpurea once a popular fish poison.

Figure 2:



(Based on maps of the Survey Dept., Rarotonga, and Allen, 1971: Figure 1.)

In yet other areas of the lower slopes there are more substantial groves of ironwoods or clusters of coconut palms.

The rising ground near the swamps will support a variety of crops including the sweet-potato (Ipomoea batatas, Mangaian - ku'ara) the dry land taro (Xanthosoma sp., taro tarua) and manioc (Manihot sp., maniota). The manioc is an introduced plant which has superseded as a food the indigenous wild arrowroot (Tacca sp.).

The bush bordering the swamps may be quite dense. The lemon hibiscus (Hibiscus tilaceus is common here, as in most of Mangaia's bush areas. Among the forest species which range up the stream valleys are the native chestnut (Inocarpus ?fagiferus), the nono (Morinda citrifolia), both traditional food sources, and the tamanu (Calophyllum sp.).

The raised area close to the swamps of wet-grown taro (Colocasia sp.) mamio, is the region of pre-contact settlement, as the presence of some breadfruit trees (Artocarpus altilis) kuru, usually planted near houses, seems to confirm. The taro itself is grown both in true enclosed swamps/wet-field terraces and on adjacent raised beds (pa'i).

Progressing seaward, scree slopes, often narrow and bush-covered, lead up to the makatea base. The surface of the makatea plateau is well-drained, water passing through the porous limestone which has many cavities and caves. There are some areas of jagged rock and sparse, low shrubbery, but much of the makatea is bush-covered. The lemon hibiscus and Callophyllum sp. are present once more, but with other trees such as the candlenut (Aleurites moluccana) and the pandanus, or screwpine, (Pandanus tectorius).

In more open areas, shrubbery of Mexican sunflower (Tithonia diversifolia) is common. Pockets of volcanic soil occur, the deepest of which now support a variety of crops including dry-land taro, sweet-potato, manioc, yam (Dioscorea sp., u'i), tomatoes, cabbage, lettuce, and melons. Bananas and coconuts are also grown. Coconut palms are widespread. The fact that two of the modern villages are completely on the makatea and the third partly so, along with the introduction of entirely new food crops and new varieties of some of the traditional food plants, have doubtless encouraged an expansion of the agricultural use of the most fertile areas of the coralline plateau.

The lemon hibiscus, pandanus, and Mexican sunflower are, again, common on the coastal strip. Here also are coconut groves, puka (Hernandia sp.) woodland, and extensive groves of the large, shady 'utu (Barringtonia sp.), the latter providing another fish poison. Approaching the shore, stunted ironwood trees give way to low shrubs.

In her work on Manganian ethno-ecology (Mark, 1976), Mary Mark suggests that the Manganians recognise five ecological complexes: the maunga, the central hill lands; the kainga, the subsistence food producing lands of the taro swamps and their surrounds; the makatea, the pae tai, the coastal strip; and the tai, the sea itself. Within these complexes she lists seventeen principal zones and micro-environments distinguished by her informants (Mark, 1976:122). These include such areas as the vao, inland valleys; the kavava, the volcanic soil pockets on the makatea the re'e, the makatea cliffs; and the 'akau, reef. It is evident that the Manganians have developed a detailed picture of their island environment. The five ecological complexes are arranged concentrically, with the hills (maunga) occupying the centre. This conception of a series of concentric rings is

a convenient abstraction of the distribution of Mangaia's principal contrasting environmental regions. (For details of Mangaian vegetation, see: Allen, 1969:3-10; and for comparable S. Cook Is. floras, see: Fosberg, 1975; Wilder, 1931.)

Animal Life

Published information on the fauna of Mangaia is sparse. 'Notes on Natural History' and 'Zoological and Botanical Notes' appear in two works by the missionary writer W.W. Gill (Gill, 1876b: 273-320; 1885:125-210). These provide many interesting insights into the Mangaian view of the animal world but little in the way of firm zoological information. The bird list prepared by the teacher and writer on Pacific peoples, F.W. Christian (Christian, 1920) is incomplete and inaccurate. However, the birds of Mangaia have been recently restudied by Dr. David Holyoak and some findings published (Holyoak, 1974; 1976). Of the island's invertebrates, there is a late nineteenth century study of land molluscs (Garrett, 1881) and a more recent record of some ant species (Taylor, 1967). The lack of studies on the marine fauna of Mangaia itself is partially compensated for by the existence of a checklist of the marine fauna for the Southern Cooks based on the 1969 Cook Bicentenary Expedition to Aitutaki and Rarotonga (Gibbs, Vevers, and Stoddart, 1975). All these have contributed to the interpretation of my own material as have works relating to the faunas of other southern Pacific islands or to Pacific faunas generally (e.g. Molluscs - Cernohorsky, 1966 and 1972; Fish - Bagnis, Mazellier, Bennett, and Christian, 1972; Burgess and Axelrod,

1971-5; Carcasson, 1977; Fowler, 1928; Harry, 1953; Reptiles - Burt and Burt, 1932).

The various animal groups will be discussed in greater detail in later chapters, but, to provide a condensed overview of the fauna, an outline can be sketched as follows.

Mammals:

Before European contact there were probably only two mammal species, other than man, on Mangaia. The first of these, the flying-fox (Pteropus sp.), a large fruit bat, continues to roost in certain areas of the makatea. The second, a small rat (probably Rattus exulans) has been largely, or entirely, replaced by larger, accidentally introduced Rattus species. The hill slopes and makatea surface were, traditionally, the main areas in which rats were to be found, feeding on nuts, fruits, and plant shoots. Present-day rats are also common on the coastal strip.

Cetaceans; whales, dolphins, and, possibly, porpoises; are sighted from time to time in Mangaian waters. Whales swimming on the surface along the line of the reef are perfectly visible from the shore. Pigs, goats, cattle, dogs, and cats have all been introduced to the island.

Birds:

The bird fauna of Mangaia is not extensive. Of the land birds, the Spotless Crake (Porzana tabuensis) favours the area of the taro swamps, a kingfisher (Halcyon ruficollaris) may be found in bush areas, while a Reed Warbler (Acrocephalus vaughani kerearako) seems

to prefer the makatea shrubbery. Grey Duck (Anas superciliosa) feed on open water in the ring of swamps. There is also a migrant visitor, the Long-tailed Cuckoo (Eudynamys taitensis).

On shore and reef one finds Wandering Tattler (Heteroscelus incanous) Lesser Golden Plover (Pluvalis dominica) and Reef Herons (Egretta sacra). A number of true sea-birds nest on the island. The inner cliffs of the makatea provide nesting holes for shearwaters and petrels (Procellariidae), and for Tropic Birds (Phaeton spp.). Trees on the coastal strip and makatea provide roosts for White Terns (Gygis alba) while Brown Noddies (Anous stolidus) nest in the crowns of coconut palms.

Familiar non-resident sea-birds are the Frigate Birds (Fregata spp.), frequently seen in flight. Reports from canoe-fishermen suggest that the Giant Petrel (Macronectes sp.) and Brown Booby (Sula leucogaster) are also to be found at sea.

Chickens and the, now very numerous, Indian Mynah (Acridotheres tristis) are introduced species.

Reptiles:

Two families of lizards, the skinks (Scincidae) and the geckos (Gekkonidae), are represented. The three skink species may be seen sunning themselves on rocks and amongst leaf rubbish on the coastal strip and makatea and, to a lesser extent, on the borders of inland bush. No clear species distribution was established, but the Blue-tailed Skink (Emoia cyanura) appears to be rather more common on the makatea.

The two gecko species are more retiring during the day, favouring recesses in trees, the cavities and caves of the makatea and house roofs. The Mourning Geckos (Lepidodactylus lugubris) are most evident in houses at night, as they hunt insects by lamp-light. The other gecko (Gehyra oceanica) is a less frequent visitor to human habitations.

Turtles are occasionally sighted at sea. They do not, normally, come ashore on Mangaia.

Fish:

In the inland waters of the swamps, streams, and small lakes, eels (Anguilla spp.) and gudgeon (Eleotris sp.) have been joined by the introduced food fish, Tilapia mossambica.

The marine fishes form by far the largest sector of the Mangaian animal world. The fish may be outnumbered in their species by the island's teeming insect life, but the attention accorded to them by the Mangaians is vastly greater.

The shallow shore pools are the habitat of small blennies (Blennidae) and marine gobies (Gobiidae). Larger pools are homes to such other small fish as the demoiselles (Pomacentridae), many of which are also reef-dwellers.

The fish to be found in the shallow lagoon vary with the state of the tide. As the tide falls, many species head for the open sea through the reef channels. Among the fish families represented, at some time, within the lagoon are:

Conger eels (Congridae)	Rabbitfish (Siganidae)
Smaller moray eels (Muraenidae)	Surgeonfish and Unicornfish (Acanthuridae)
Needlefish (Belonidae)	Scorpionfish and Lionfish (Scorpaenidae)
Half-beaks (Hemirhamphidae)	Filefish (Aluteridae)
Goatfish (Mullidae)	Triggerfish (Balistidae)
Rudderfish (Kyphosidae)	Boxfish (Ostraciidae)
Wrasses (Labridae)	Porcupinefish (Diodontidae)
	Pufferfish (Tetrodontidae)

The deep pools behind the reef (from 6ft. to 15ft. or more in depth) are inhabited by many smaller fish, including surgeonfish, demoiselles, cardinalfish (Apogonichthyidae), and butterflyfish (Chaetodontidae). Many of these also live in the crevices of the reef slope. The upper reef recesses are particularly rich in soldierfish and squirrelfish (Holocentridae). These are chiefly active at night, as are the bullseyes and sweepers (Priacanthidae and Pempheridae), also living along the reef face. Plentiful in the outer surge channels are handfishes (Cirrhitidae) and smaller sea basses (Serranidae).

The larger serranids are found at greater depths and further out on the reef slope, as are the larger snappers (Lutjanidae). With the repeated movement between ocean and lagoon, most of the families already mentioned as being present within the reef are, naturally, also to be found outside it. Certain other fish of families mainly living beyond the reef may at times enter the lagoon on high tides, especially if pursued by predators. These include mullet (Mugilidae), threadfins (Polynemidae), flagtails (Kuhliidae), and smaller carangids,

such as scad. The majority of parrotfish species (Scaridae) live and feed solely along the outer edge of the reef, browsing the reef slope.

The bigger Carangidae, the jacks or trevallies, are among those active predators which may be responsible for chasing their smaller relatives into the reef openings. There is, in addition, a range of larger, oceanic predators, tuna, bonito, wahoo, marlin, swordfish, and snake mackerel (Scombroidei), barracuda (Sphyraenidae), dolphinfish (Coryphaenidae), and sharks (Selachii). Many of these, especially the sharks, will draw close to the reef slope. There are, in places, tuna 'harbours', places in which tuna are known to congregate, well within 100 yards of the reef ridge.

Invertebrates.

If there is little hope of doing justice in this thesis to the diversity of the Manganian fish fauna, there can be no hope at all of dealing other than summarily with the immensely rich realm of the invertebrates. Many groups of creatures, such as the majority of marine worms, coral polyps, or large numbers of smaller insects, are of little or no interest to the island's inhabitants, and are dismissed collectively with such vague terms as 'veri' or 'manumanu'. Attention will mainly be given to those species and groups of species which are more clearly recognised and differentiated by the Mangaians.

Echinoderms:

Sea-urchins (Echinothrix sp. , Diadema spp., Echinometra sp., Heterocentrotus spp., etc.) and sea-cucumbers (Holothuria spp. et al.) are gathered from lagoon-floor and reef-surface. Though not plentiful,

some starfish (Asteroldea) are also familiar sights in those areas. The Crown of Thorns Starfish (Acanthaster planci) is present in fairly small numbers.

Crustaceans:

The inland streams and small lakes are home to fresh water shrimp (Macrobrachium sp.). Crabs are found from the makatea to the reef. Most impressive of the land-dwelling species is the disturbingly large Coconut Robber Crab (Birgus latro) which spends part of the year in burrows on the makatea. Small, brown grapsid crabs are common around the houses on the coastal strip. A variety of grapsid species also dominate the rocky shores, giving way in sandy areas to burrowing Ghost Crabs (Ocypodidae).

The lagoon has a wealth of small hermit crabs, and true crab species such as Daira perlata and Atergatis ?floridus inhabit the holes and crevices of the coralline floor. The reef shows a still greater diversity of crabs (with species of the genera Dardanus, Calappa, Charybdis, Carpilius, Xanthias, Etisus, Plagusia, Percnon, et al.). Many of these crab species are taken for food, as are the spiny lobsters (Panulirus spp.) and Spanish lobsters (Ibacus sp.), reef-dwellers which may be seen in the lagoon at night.

Arachnids:

Spider species are numerous, but little noted by the Mंगाians. Most familiar is the crab spider or wolf spider Heteropa venatoria commonly found in houses and easily noticed by virtue of its large size.

Insects:

The members of this class abound in all land areas. Much of this large insect fauna are only referred to by the most general of Mangaian terms. However, some members of the following orders are more precisely specified in the terminology and are the most familiar of insects.

- Collembola - Springtails are plentiful in the soil, especially in bush areas of the makatea and the interior.
- Odonata - The greatest concentration of damselflies and dragonflies is in the region of the taro swamps (3 genera recorded — Agriocnemis, Diplacodes, Pantala)
- Orthoptera - Grasshoppers and both ground and bush crickets are found in all but the most rocky or barren parts of the island. The ground cricket Teleogryllus oceanicus is particularly common.
The stick insect Graeffea crouanii is a well-known pest of the coconut palms.
Those cockroaches most common around dwellings are the large Periplaneta spp. Other species, such as the stinking cockroach Platyzosteria nitida are more likely to be found in inland bush areas.
- Dermaptera - In many areas, the undersides of rocks, fallen trees, and matted undergrowth provide shelter for earwigs. Specimens of Chelisoches morio were collected.

- Mallophaga - Lice are commonly seen on chickens and on pigs.
and Anoplura The human headlouse (Pediculus humanus capitis) is very numerous.
- Homoptera - Aphids (Aphididae) are chiefly thought of as a pest of the taro.
- Mealybugs - (Pseudococcidae) are now assuming some importance as a pest of pineapple.
- Lepidoptera - A walk through the makatea shrubbery releases a shower of small moths (Microlepidoptera) which are also drawn nightly to the pressure lamps. Most striking of the moth species are the large sphinx moths (e.g. Gnathothlibus erotus eras) which also enter houses at night. There are few common large butterflies, but the Monarch Butterfly (Danaus plexippus) is certainly present, as might be expected of this widely-ranging species.
- Diptera - Flies of all sizes, from blowflies (e.g. Chrysoma spp.), the maggots of which enjoyed many of my specimens, to the minute Cadrema spp., are very much part of the Mangaian working environment.
The long-legged night-biting Culex mosquitoes are those most often seen in the villages close to the coast. The slightly smaller Aedes polynesiensis are more numerous in the bush areas closer to the taro swamps.
- Siphonoptera - Fleas (probably Ctenocephalides ap.) are known principally as parasites of dogs.
- Hymenoptera - Mangaian bees include a Lithurgus sp. capable of

burrowing in wood and which sometimes invades the structure of dwellings. The honey bee (Apis mellifera) was a nineteenth century introduction. Wasps of the families Evaniidae, Sphecidae, and Eumenidae were collected on the coastal strip and makatea. Large social wasps of the genus Polistes may have been an accidental introduction of the last century.

Ants parade across house floors, as they do over much of the rest of the island. I am unable to provide an account of ant species beyond the previously recorded Pheidole megacephala and Paratrechina vaga.

Myriapods:

Two species of small millipedes (Triginiulus ?lumbricinus and Orthomorpha ?coarctata) are common beneath loose tree bark and on the bush floor. A larger, yellowish, reputedly poisonous centipede (Scolopendra sp.) is found on the makatea and in the interior.

Molluscs:

Once again, only a small selection of a very extensive fauna can be mentioned. Of the land-dwelling molluscs, most important to the Mंगाians are those species used for decorative purposes. Millions of the small, yellow snail Helicina flavescens are gathered in the course of a year.

Collecting of marine molluscs concentrates on the lagoon and reef ridge. Only a few larger, and principally decorative, species are taken from deeper water on the reef slope. These include the Triton shell

(Charonia tritonis) spider strombs (Lambis spp.), and some larger clams (Tridacna spp.). Common on the reef ridge are muricid 'rock snails' (Drupa spp.), turban shells (Turbo spp.), their large, spiral shells providing homes for all the bigger hermit crabs of the lagoon, and Astraea rhodostoma another member of the family Turbinidae.

The turning over of almost any lagoon-floor rock will reveal, in the hollow beneath, cone shells (Conus spp.), small 'rock snails' (Drupa spp.) and strombs (Strombus spp.), and, in some areas, small cowries, such as the Money Cowry (Cypraea moneta).

Auger shells (Terebra spp.) and mitre shells (Mitra spp.) also lie in lagoon-floor hollows, while burrowing clams (Tridacna spp.) embed themselves in the coralline rock. Bivalves such as the moderately large Asaphis violescens or the smaller mussels (Modiolus sp.) are commoner in small sandy areas. The beach rocks are the habitat of nerites (Nerita spp.) and of limpets (Patelloida sp.).

The cephalopods are mainly to be found in the crevices of the reef face. However, smaller octopus do come onto the reef ridge and sometimes make their homes in rock holes within the lagoon.

This completes the summary account of those animal groups which feature most prominently in the Mangaian animal world. Comment on some invertebrates not discussed here (e.g. jellyfish, worms) will be found in Ch.5 and Ch.7. Appendix 1 provides a systematic listing of animal species.

Attention must now turn from the natural to the social world.

Historical and Ethnographic Background

Peter Buck, in his historical ethnography *Mangaian Society* (1934), from genealogical evidence, placed the date of Mangaia's first settlement at about A.D. 1450. More recent archaeological investigations indicate that there were some settlements in the Southern Cook Islands in the late tenth century. Adzes found at Marae o Rongo, on the west coast of Mangaia, have been identified by Roger Duff as belonging to his Early East Polynesian phase, A.D. 500-1100 (Duff, 1974). Even if Mangaia's first settlers were an offshoot of an already established Rarotongan community, it is likely that they arrived on the island rather earlier than Buck's data suggested. Mangaian legend states that the first group to inhabit the island were the Ngariki. They were ruled over by the three grandsons of the supreme god Rongo, who had emerged from the underworld of 'Avaiki. ('Ngariki' is, apparently a contraction of 'nga ariki', 'the chiefs'.) The tradition states that Rongo divided the authority between his grandsons. The first received the 'drum of peace' associated with the mangaia or temporal rule. The second received control of food resources, and the third knowledge of the prayers and rituals of Rongo's cult (Buck, 1934:19). This mythical division establishes the framework of major titles in pre-contact Mangaia.

The title of Temporal Lord, holder of the mangaia was to become one of purely secular authority gained by military success. The Temporal Lord would be confirmed in his office by his warrior supporters whom he could reward with grants from the lands of the conquered. But the full range of his powers and duties is far from clear. Goldman (1970:80) has proposed that the Temporal Lord's involvement in the ritual of the 'drum of peace', which was sounded to

end a state of warfare, suggests that religious and secular authority were originally combined in this title.

The Ruler of Food (te ariki i te ua i te tapora kai) was concerned with the ritual surrounding the exploitation and ceremonial distribution of foodstuffs. He was influential in establishing ra'ui closed seasons on the use of certain vegetable resources or fishing grounds to avoid the depletion of stocks. The rituals preceding communal canoe fishing were wider his control (see Ch.4), as was the calling of the allotments of food made in feasts. The correct form of the distribution was a confirmation of the relative ranks of the recipients and was ultimately related to the prosperity of the land. Gill (1894:150) also refers to the Ruler of Food as the Priest of Mokoiro, Mokoiro being the grandson of Rongo in whom this authority was first invested. It seems that this title remained hereditary within the Ngariki tribe.

The control of the cult of Rongo was divided between two offices, those of the Inland High Priest (ariki pa uta) and Shore High Priest (ariki pa tai). The holders of these offices were both responsible for incantations thought to protect the island from spirit attack (Gill, 1890b:634), and both were involved in the conduct of human sacrifices to Rongo. Principal among these sacrifices was that which had to be performed before the sounding of the 'drum of peace'. If the Inland High Priest refused to perform the necessary rituals of sacrifice, the title of the new Temporal Lord and the new land-holding arrangements could not be confirmed. On the other hand, the Temporal Lord presided over the installation of the High Priests of Rongo and traditional history gives instances of the Temporal Lord bringing influence to bear on the selection of candidates. There is even an instance of the deposition of an Inland High Priest (Buck, 1934:114). Yet, the titles were theoretically hereditary and seem to

have been kept within the Ngariki. In peace, the office-holders were extremely tapu, hedged by ritual restrictions. In approaching the lower ranking Shore High Priest, the Temporal Lord was still required to move on his knees (Gill, 1890b:636). However, if a High Priest became involved in secular, military affairs, this sanctity would not protect him in time of war. Rights in land and in food distributions went with the offices, but they remained ideally apolitical.

Of these three major titles it is that of Temporal Lord which has been at the forefront of the island's history. Buck writes:

The history of Mangaia illustrates the attempt of the Ngariki to keep the position of the Temporal Lord of Mangaia within their own tribe, and their ultimate failure through the ambition of the warlike Tongaiti. Once precedent was broken, temporal power over the whole island vanished. The principal that temporal power was the reward of war and not of hereditary descent led to frequent changes of secular government.
(1934:34)

The Tongaiti were, according to the tradition, the first of several groups of later settlers who were to threaten the Ngariki supremacy. Buck (1934:102-3) offers the following list:

TRIBES	SUBTRIBES	ISLAND OF ORIGIN
Ngariki	Ngariki (Paparangi)	Avaiki (?)
	Akataura	Avaiki (?)
	Vaeruarangi	Avaiki (?)
Ngati Vara (Amama)		Avaiki (?)
Tongaiti	Teipe	?
	Teaaki	?

TRIBES	ISLAND OF ORIGIN
Ngati Tane (Aitu)	Tahiti
Te Kama	Tahiti (Vaiiria)
Kanae / Tangiia	?
Tui-kura	
Ngati Amai	Rarotonga
Ngati Manaune	Mangaia

In fact, tribal origins are very open to speculation. The evidence of field archaeology suggests some Mangaian affinities with Rurutu in the Austral Is. (Bellwood, 1974).

The history of Mangaia is one of repeated conflict. Traditional history records forty-two battles, from the battle of Te-rua-nonianga, the first between the Ngariki and Tongaiti, to the battle of Putoa, fought in 1828 between pro-Christian and anti-Christian forces. It is said that for the first eleven battles the title of Temporal Lord stayed with the Ngariki. The next period of Tongaiti supremacy was followed by a Ngariki resurgence. The later period saw the rise of other tribes, such as the Ngati Vara and Manaune.

There has been considerable discussion of the nature of the Mangaian tribe, or kopu tangata. Leach (1962:601-4) has argued that it may be seen as a patrilocal patrician, comparable to the Tikopian kainanga. Scheffler (1963:903-8), on the other hand, has suggested that Buck's evidence lends equal support to an analogy with the ambilateral Maori hapu. Sahlins (1958:172) wisely hedged his bets by describing the Mangaian descent pattern as 'ambipatrilineal'. Since the ethnography of Buck, the basis of the Leach/Scheffler debate, relies heavily upon the earlier work of the missionary

ethnographer William Wyatt Gill, it is worth quoting some of Gill's own comments on the tribe. He states:

Descent in the male line from a common ancestor (tama tane) constitutes the tribe. Descendants of the female line (tama vaine) may be adopted into the tribe, with the consent of the elders.....

In general, slaves married into victorious clans, were content to follow its fortunes; but there were numerous exceptions to this rule, When dying, mothers of rank would commend their children to the chiefs of their own tribe, the slave fathers having no voice whatsoever concerning their offspring..... Usually the question of tribe was decided by the divinity or divinities named at the severance of the funis umbilicus.... In every case there must be a oneness of origin (on the maternal if not on the paternal side), even in cases of adoption. When a great favour - life or land - was sought, it was wonderful how close the relationship was made to appear; but when a grudge had to be paid off, the sins (blood shedding) of that branch of the clan were alone remembered.

(1890a:333-4. Gill's 'slaves' are members of defeated tribes who offered their services to more successful groups in return for permission to cultivate inferior lands.)

Since the kopu tangata was strictly exogamous, the children of any union were, at birth, potential members of two tribes. It is clear that there were many qualifications of the patrilineal ideal. Gill (1890a:331) states that normally at least one child would go to the tribe of the mother. In some cases, the children were shared alternately between the families of the parents (Buck, 1934:97). The rank and influence of the mother's family appears to have been a major factor in their control over her children. A woman might also attempt to have her children taken into her own tribe when her husband was a member of one of the subjugated tribes eligible as

human sacrifices (Buck, 1934:98). Adults, on the defeat of their father's tribe, might be adopted into that of their mother to gain protection. The ideal of patrilocality might also be violated when a high-ranking female married an inferior male of a defeated group (usually to gain a new body of supporters for her father's tribe). However, it was usual for a woman to live with the tribe of her husband.

So, despite the bias towards patriliney, cognatic links were broadly recognised. Major titles could be inherited in the female line when the male line was exhausted (Gill, 1890a:334), and, though it was more permissible to marry a distant cousin in the female line than one in the male line, this might still be seen as provoking the anger of the tribal gods (Gill, 1890a:330).

It was a relationship to a particular god, or to a number of particular gods (atua), which underscored tribal identity. Dedication to given god established tribal membership. In adoption into a new tribe this tie to the divinity of the former tribe had to be ritually broken (Buck, 1934:98). If incest prohibitions could be interpreted in terms of the anger of tribal divinities, murder within the kopu tangata was talked of as 'ta atua', 'killing the god' and would provoke a divine blood curse (Buck, 1934:156). Besides being a kin group, the kopu tangata was a group of worshippers. Each tribe operated its own cult or cults in addition to involvement in the all-embracing cult of Rongo.

Rank was inherited in the senior male line. Each tribe had its high chief (ariki), preferably the firstborn son of a firstborn son. Junior members of the chiefly line formed the body of chiefs ('ui rangatira) representing the family groups within the tribe. Kinship terminology reflects the importance of seniority, distinguishing between older and younger siblings and cousins or more distant collaterals in the same

generation. (The terminology, as a whole, is strongly generational.) But, in the course of Manganian history, the role of the warriors (toa) assumed increasing importance. Even the supreme title of Temporal Lord was taken by a successful war-leader. Seniority alone could not ensure continued influence. Where the expertise of a warrior, or the support of warriors, was lacking, effective power could pass out of the firstborn line. Irving Goldman, in his analysis of Polynesian status systems, sees in Manganian history a transformation from a 'Traditional' to an 'Open' system. In the Traditional system:

....seniority is central. As a source of mana and sanctity, senior descent establishes rank and allocates authority and power in an orderly manner. The Traditional is essentially a religious system headed by a sacred chief and given stability by a religiously sanctioned gradation of worth. (Goldman, 1970:20)

This, he suggests, is the system that the Ngariki attempted to maintain. In an Open system:

...seniority has been modified to allow military and political effectiveness to govern status and political control. The Open system is more strongly military and political than religious, and stability in it must be maintained more directly by the exercise of secular power. (Goldman, 1970:20)

The difficulties of maintaining stability in the status relationships of constantly competing tribes and tribal leaders are only too evident from Mangaia's battle-ridden history.

At the core of many conflicts was the control of the taro-growing lands. To this day, the zone of the taro swamps is colloquially known as the 'kauvai toto', the 'river of blood', in recognition of the many

battles fought over it. Dwellings and religious sites (marae) bordered this area. The central hills and the makatea were the haunts of the defeated. Inheritance of tribal lands could be disrupted by conquest. The new Temporal Lord would distribute the best land of defeated groups amongst his successful warriors. The degree to which any tribe managed to maintain connections with particular areas of land is not clear. However, by the early 19th.century, an island-wide system of district and sub-district chiefs appointed under the authority of the Temporal Lord had come into being. The six major districts, wedge-shaped divisions from hills to coast, were presided over by the pava six prominent warriors. Each of these major districts (puna) was subdivided into from five to nine tapere. These sub-districts were under the control of kairanga nuku, chiefs appointed by the pava. They were responsible for the distribution of lands within their tapere and would evict members of defeated tribes from the prime taro-growing lands in their sub-district. This territorial system was operating at the time of the establishment of a Christian mission on Mangaia.

Cook visited Mangaia in 1777, and at least one other ship stood off the island in the early 19th.century. But, the earliest firmly recorded landing is that of London Missionary Society teachers in 1823. This initial landing was unsuccessful, the teachers withdrawing, having been assaulted (Williams, 1838:21). However, in 1824, two Taha'an mission teachers were successfully landed and established an L.M.S. presence. Conflict between those chiefs supporting the mission and those opposing mission activities erupted into the battle of Putoa in 1828, in which victory fell to the pro-Christian forces. In the following re-arrangement of titles, the temporal leadership of the island was assumed by Numangatini, previously holder of both the high priesthoods of Rongo but nonetheless a supporter of the mission. This

passage of the temporal power from the warrior to the priestly line is still commented upon today. The pattern of land distribution remained basically the same. The present body of chiefs, the aronga mana is composed of the ariki of the island, six kavana (coined from 'governor') presiding over major districts, and the 'rangatira', the sub-district chiefs. This assembly is a direct descendant of that established under Numangatini and clearly reflects the earlier territorial arrangements.

With the consolidation of the mission, the pattern of settlement was increasingly transformed, villages being constructed near the coast. The new communities cross-cut tribal divisions. Contact with the outside world increased. From the 1830's there were regular visits from traders and whalers. Mंगाians took work on whaling ships and travelled the Pacific. By the 1840's Mंगाian ministers were being sent to evangelise in other islands. Market houses, and later stores, were established in the three villages of Oneroa, Ivirua, and Tamarua.

Changes were also taking place in the pattern of agriculture, with increasing exploitation of the fertile areas of the makatea. Besides introducing domesticated food animals and bees, the missionaries brought a new range of crops, such as oranges, limes, coffee, cotton, pineapple, and mangoes. By 1906 Mंगाia was exporting more than £5,700 worth of oranges, bananas, sweet-potato, copra, coffee, lime-juice, and candlenut (Large, 1906), a broad mixture of traditional and introduced products.

Resident European missionaries were present on Mंगाia from the 1840's. Though there was some conflict between chiefs and missionaries, the mission-guided polity operated largely through the body of land-controlling chiefs. As in other parts of the Cook Islands, a strict code of laws was enacted, not only embodying a stern non-

conformist morality, but outlawing such traditional customs as tattooing and 'consulting a sorcerer'. They also regulated trade with Europeans. Though there was a new hierarchy of deacons and church police, it seems that the most important church offices were, largely, in the hands of the aronga mana. So, in addition to controlling the distribution of land, these chiefs played a major role in administering the laws, received the dues from visiting ships, and had considerable control over trading relations (New Zealand Government, 1900; Trenn, 1946).

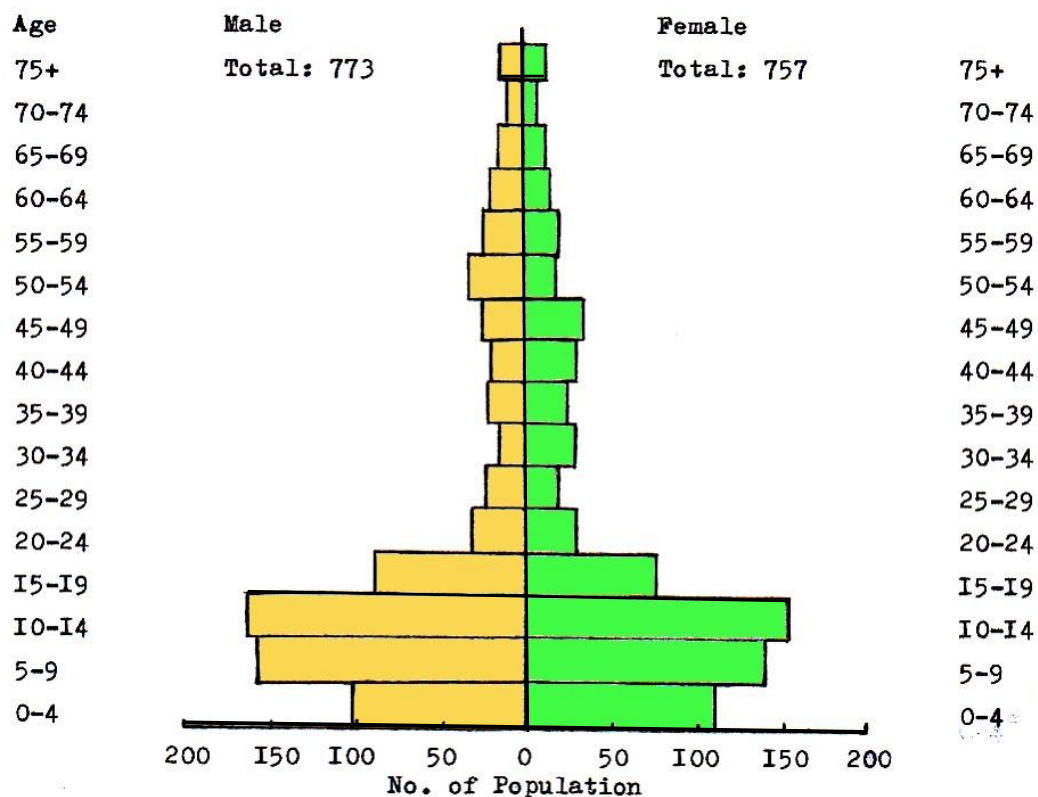
In 1888 a British protectorate was declared over the Cook Islands and in 1893 a council was established for the island of Mangaia, on which the aronga mana was heavily represented. It was not until 1903, two years after the annexation of the group by New Zealand, that a Resident Agent came to Mangaia. Conflict immediately arose between the colonial administrator and the leaders of the body of chiefs. One of the islands supreme ariki (there were two at this period, due to a problem with the succession) and another prominent chief refused to attend the Island Council for more than a year because its presidency was in the hands of a European. There was also resentment that the administration of the law had largely passed into the control of the Resident Agent (Gudgeon, 1902).

There can be no doubt that the colonial administrators attempted to undermine the position of the aronga mana which they saw as an obstacle to effective government. The basis of aronga mana power in the colonial period remained the land. Their other sources of authority (within the framework of the administration) were eroded, but the Resident Agents failed to establish the rule of the Cook Is. Land Courts

on Mangaia. The history of the body of chiefs in this century is complex, involving factionalism and the emergence of national political parties. For present purposes, it is sufficient to say that, despite their loss of legal powers and challenges both from government and from other parts of the Mangaian population, the aronga mana continues to decide upon the results of land disputes and exercises a considerable authority. Yet, lacking legal sanctions to back it has sometimes found these impossible to enforce.

The 1976 population total of 1,536 is not very different from the 1,471 recorded in 1911. (The population estimate for the early 19th. century was about 3,000; but during that century disease took a substantial toll, with a number of recorded epidemics.) The population structure has, however, undergone marked changes, especially in the last twenty years, with the effects of increased migration to Rarotonga and New Zealand. Though some migrant workers do return, the population has fallen from the levels of the 1950's and 1960's and there is a scarcity of young adults - see Figure 3. (For a general survey of Mangaian population, see Allen, 1969.) The Cook Islands entered into free association with New Zealand in 1965, with the formation of their own government. However, Cook Islanders remain New Zealand citizens, with somewhat freer access to that country than other Pacific islanders.

Figure 3.



1976 Manganian Population Pyramid

Dependency Ratio $148.4 = \frac{(\text{Pop. 0-14} + \text{Pop. 65 and over})}{\text{Pop. 15-64}} \times 100$

Mean Household Size = 5.9 persons

Occupation by Industrial Classification, Dec. 1973

	Male	Female
Agriculture	281	-
Commerce	11	5
Transport, storage and communication	6	-
Services	52	26
Other	3	-

(Based on the statistics of the Statistics Office, Central Planning Bureau,
Govt of the Cook Is. - Govt. of the Cook Islands, 1977)

Money does flow back into Mangaia from overseas workers, but agriculture is still the base of the Mangaian economy. Pineapple has become the principal cash crop, with shipments being made to Rarotonga and, less frequently, directly to New Zealand. Pineapple-growing has brought the lower slopes of the central hill into cultivation, giving these lands a new importance. The staple crop remains the taro. Though shop-bought fish and meat, tinned goods, are now important in the diet of the islanders, and though introduced domesticated food animals are widely kept, the exploitation of traditional sea-food resources continues, though on a reduced scale.

Some elements of the traditional division of labour persist in the present-day practices of agriculture, fishing, and food-gathering. The work of women continues to be of importance in the growing of taro, which in the pre-contact period was almost entirely cultivated with female labour. Women are still the principal collectors of non-fish sea-foods, whereas fishing with line or spear is considered the work of men. Though sex-roles are well-marked, the fact that the present ariki is a woman is indicative of considerable changes in the position of women as a whole. The early missionaries were particularly anxious to overcome what they saw as 'female degradation' (e.g. see Gill, 1890a:332).

The household continues to be the dominant unit of production in agricultural and other food-gathering activities. However, co-operation between households, especially closely related households living in the same or neighbouring compounds (village housing sites, not necessarily fully enclosed), is not uncommon. The sharing of food and other goods would make a complex study in itself. There is also a small proportion of intermittent agricultural wage-labour.

The typical household is composed of a husband and wife and their children, often including 'feeding children' (tamariki 'angai) - children in an adoptive relationship of variable strength), or grandchildren, who may also be considered 'feeding children'. The kopu tangata, as a well-defined tribal unit, has disappeared. Very few informants could name the tribe to which they belonged by virtue of their ancestry. Now, genealogies are seldom recalled beyond the grand-parental generation. A supposed greater genealogical knowledge is intimately connected with the aronga mana's continued authority in land matters, since rights to land are now inherited. But, for ordinary, bilingual Mंगाians 'kopu tangata' has become more or less interchangeable with the English word 'family'. Many consider that they belong to the kopu of both parents. The fuzzily-bounded kopu tangata/'family' of today clearly cannot play a role in the regulation of marriage equivalent to that of its predecessor, the strictly exogamous tribal kopu tangata. Yet the idea that it is inappropriate to marry within the kopu is still expressed. Resistance to a marriage may still be phrased in terms of a couple's consanguinity. First cousin marriage is widely frowned upon, and second cousin marriage regarded as undesirable. I was told of one case in which a woman's family has used the issue of blood relationship to object to a marriage with her MMMBDS.

In the 19th. century the church provided a new over-arching authority, comparable in some ways to the cult of Rongo. But it did not allow for the lesser cults which had been of great importance in establishing tribal identity. Besides the more direct effects of the coming of the mission in creating a new hierarchy and in radically altering residence patterns, religious changes may have, in themselves, contributed to the undermining of the kopu tangata as

tribe. The largest church in Mangaia today is the Cook Islands Christian Church, the direct descendant of the L.M.S., a Congregationalist church run by Cook Islanders. Roman Catholics, Mormons, and Seventh Day Adventists also have churches on the island. Church organisations play a major role in setting up village activities, from dances to co-operative labour.

Trucks, motorbikes, transistor radios, concrete and corrugated iron are now very much part of Mangaian life. Since my departure in 1977, an airstrip has been built on the makatea and light aircraft can supplement the twenty or so shipping calls of the year. There are some hopes of getting electricity and running water. Most of the day to day administrative tasks of the island are in the hands of a Mangaian Chief Administration Officer (the post-independence successor to the Resident Agents) and a small group of local public servants. In the national political arena of the Legislative Assembly in Rarotonga, Mangaia is represented by two elected members. Education and health services have been greatly expanded in this century. The one-ward hospital and Mangaia College, teaching up to fifth-form level, stand close together in Oneroa village. Most Mangaians under sixty have English as a second language, and many have travelled as far as New Zealand. The existence of such groups as the Mangaia Boy Scouts, and even the Mangaia Kung Fu Club, makes it clear that modern Mangaia is very different from the insular society of the early 19th. century. The listing of changed and changing elements in Mangaian life could continue at length. The social and economic changes resulting from the expansion of commercial agriculture have already been the subject of one thesis (Allen, 1969).

Yet, there are important continuities. In respect of the internal political structure, the present aronga mana combines features of the

traditional land-holding chieftaincies under the Temporal Lord with features of the, now defunct, tribal hierarchy. They operate with the same territorial system as the former group but, with inter-tribal warfare having ceased one hundred and fifty years ago, there has been no redistribution of titles for an unprecedented period. The titles of district and sub-district chiefs have been inherited, with a preference being shown to male lines. They are passed on, then, in a manner analogous to the tribal chieftainships. It seems that, in coming to terms with the new situation provoked by the arrival and establishment of the mission, a fusion of elements from the pre-contact polity took place. Questions relating to land still come before the aronga mana. Land rights have remained, on the whole, an all-Mangaian matter. Rarotongans, for whom Land Court cases seem an ever-present fact of life, particularly note this aspect of Mangaian 'traditionalism'.

Especially important for the present study is the continuity in the relationships between the Mangaians and the natural world. Taro-growing and fishing are a persistent core in the subsistence activities of the island's people. The natural environment of land and sea is very much part of day to day existence. Many animals continue to be the objectives of human actions. Besides fish, crustaceans, molluscs and echinoderms are regularly sought for as food. There have been few major changes in the methods by which the resources of the indigenous animal world are exploited. Many more species are regularly encountered in the course of other economic activities. With the tropical exuberance of the island's small life, countless creatures which are not sought for appear to come looking for you. Insects are inescapable. The intrusions from the animal kingdom do not stop at the house door. The inhabitants of my own room ranged from ants to

grapsid crabs. It is not, then, surprising that Mंगाians remain very aware of their animal world. It is not something that is merely reflected upon. It is lived with, as it has been throughout their history.

CHAPTER 3

TALKING ABOUT ANIMALS.

This chapter is intended as an introduction to Manganian animal categories as expressed in their language. To give some idea of the complexities involved in deriving a notion of 'the Manganian categorisation of animals' from language in use, three main issues will be considered.

Firstly, an outline will be offered of the terms now used for the most inclusive categories of animals, that is to say, of those terms which would be seen as domain or major sub-domain labels in lexico-semantic field theory or as the labels of the higher nodes of a taxonomic tree in the standard folk taxonomy approach (particularly those that be seen as 'life form' terms by Berlin, Breedlove, and Raven). Looking at the way terms are actually used raises some of the problems of viewing Manganian animal categories and their relations in terms of formal taxonomic conceptions.

Secondly, consideration will be given to the external influences for change which have acted upon Manganian language and categorisation over the past one hundred and fifty years, allowing some assessment of the adjustments which may have taken place in this period.

The chapter concludes with a note concerning the various ways in which the interrelationships of animal categories are expressed in Manganian speech. It raises the question of the degree of integration that can be seen amongst such categories, the extent to which they come together to constitute a general classification.

The Major Categories

There is no single Manganian term corresponding in extension to the English word 'animal' in its widest sense. Especially in religious addresses, one may hear references to ' 'apinga ora' or, more archaically (or, as we shall see, more Biblically), ' 'mea ora' Both these expressions may be rendered as 'living things' . For most, the category of 'living things' would embrace both animals and plants. The terms ' 'mate', 'dead', and ' 'ora', 'living', are applicable to both groups of organisms. Urged to distinguish other forms of 'living thing' from plant life, informants made reference to powers of movement. One informant, under the pressure of this unusual questioning, formulated a closer approximation to 'animal' in the rather inelegant Manganian phrase ' 'apinga ora 'aere'aere ua', 'living thing that goes about'. There were also references to observable breathing (in larger animals and fish). In fact, the distinction between plant and animal is taken for granted and could be approached on all sorts of dimensions, from food textures to the differing strategies of procurement phenomena, such as rigor mortis ('pua kiki') characteristic of animal life.

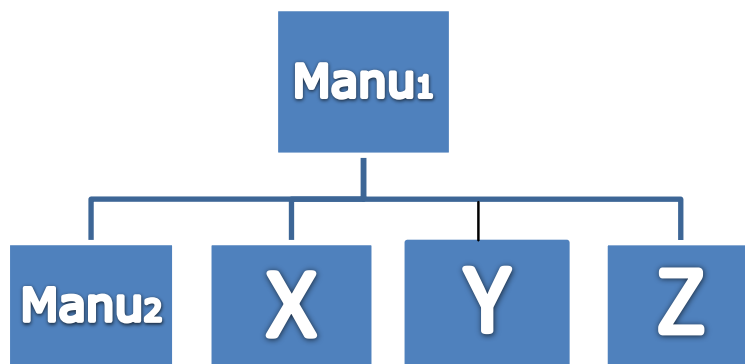
Within the animal world, a major distinction is drawn between ' 'manu' and ' 'mangaika' (or ' 'ika'). Before looking at the real complexity of the application of the category terms, it is at least mnemonically convenient to describe this as a distinction between creatures of land and air ('manu') and the fishes of the sea ('mangaika/ika'). These two major categories are central to the Manganian view of the animal world, but they do not partition it exhaustively. It will be seen that there are numerous animals which are neither 'manu' nor 'mangaika'.

There is a contextual variation in the reference of the word 'manu' which gives rise to a number of problems in the interpretation of the category with which it is associated. Some of the indeterminacy is similar to that found with the English word 'animal', in that, according to context, it may be applied either to a very extensive set of organisms or to a restricted sub-set of that major set. Further problems arise for the would-be systematiser from the contrast between what might be termed the 'adequacy of definition', when category terms are directly defined in relation to one another, and the 'adequacy of general usage'. That is to say, relationships which are denied in the act of defining terms (e.g. specifying "X is not a manu") appear to be accepted in other parts of the discourse (e.g., in speaking of "those manu X, Y, and Z").

The more restricted reference of 'manu' is to larger flying creatures, principally birds, but also the flying-fox. So, a rau manu, 'many manu', is a large flock of seabirds forming over a shoal of fish. In the broader usage, domesticated animals (pigs, goats, cows, horses, dogs, cats) are certainly manu. "E tangata manu koe", "You are a man of manu", is an appreciative remark which may be directed at the possessor of plentiful livestock. Rats are also manu. 'Taua manu ra, e kio' states one myth text, 'that manu was a rat'. Greater uncertainty was shown in defining the relations of 'manu' and 'moko' (lizard). Some informants readily accepted that lizards were manu. Others felt that the sentence "E manu te moko", "Lizards are manu", if not entirely unacceptable, was at least unusual. Yet, in conversation, it was apparently acceptable to include moko as part of a casual grouping of creatures referred to generally as 'manu'. In addition, there was less resistance to directly describing lizards as 'manu rikiriki'

'small manu'. (The use of this expression will be considered shortly.) Similar difficulties arise with the insects, arachnids, and other small life, with varying degrees of acceptance of the applicability of 'manu' in definition, said problems of context. More than once an informant, having denied that the grasshopper (uru'apuka) could be said to be a manu, spoke of the creature, in conversation, as 'manu tari maki', 'manu carrying sickness'. Human beings (tangata) may, figuratively, be described as 'manu'. However, 'manu' and 'tangata' are normally in contrast.

A possible way of representing 'manu' within a standard taxonomic model would be:



where Manu2 is the restricted category of 'birds' and X, Y, and Z are other sub-categories of the wider Manu. However, this does little to express the centrality of the birds to the conception of 'manu' or to express the varying degrees of certainty with which the term might be applied to other animals.

In effect, 'manu' should not be seen as the label of a firmly bounded and clearly partitioned class. Speaking of 'folk taxonomy' or 'ethnozoology' can be misleading, unwarranted implications creeping in

as to the functions fulfilled by animal terminology and categorisation. The category 'manu' only weakly resembles a class in a traditional Aristotelian/Linnaean taxonomy. It lacks that instantaneous total constitution that such a class derives from the single context of the relationships, principles, and definitions of a system of classification. The boundary of a taxonomic class may be brought into question, but the factors crucial to interpretation should be well-defined and readily accessible to the mind. Even in the polythetic approach of numerical taxonomy there are notions of relevant mathematically expressed discontinuities between bundles of attributes. Categories expressed through everyday language often lack such accessible decision procedures for defining their boundaries. The frequently prolonged efforts of my informants, making comparisons between different organisms, considering the various uses of the term, clearly indicated the problematic nature of constituting 'manu' as a well-defined class.

The word 'manu' is used as a general term to refer collectively to various groups of land and air creatures, but also to incidental groupings of such creatures emerging in the course of a particular conversation. As mentioned with regard to the inclusion of lizards among the manu, the scanning of creatures subsumed under the term 'manu' in such informal groupings may be less rigorous than if each were to be individually assigned to the category.

'Manu' is also used to refer to particular land or air creatures when their more precise identity is unclear. A distant object recognised as a bird will be called 'manu' before it can be clearly made out and more precisely identified. Similarly, there are instances of actual unfamiliarity. A specimen of the rarely seen Wedge-tailed Shearwater was frequently greeted with " 'Are au i kite(i)teia manu ", "I don't know this manu".

Though I have heard noises made by either dogs or pigs at night attributed to manu the use of 'manu' in indeterminate identification seems mainly to involve birds. This may reflect the focal importance of birds in conceptualising 'manu', but the paucity of larger land animals must be borne in mind. The lack of diversity among mammals and lizards, and their familiarity, allows for identification from extremely limited information. Birds have a sufficiently greater diversity to create sufficient indeterminacy on very restricted information to encourage the use of a broader category term.

Another minor use of 'manu' in relation to indeterminacy is in a narrative device found in some legend texts. This device involves a progression from the indeterminate or general to the particular. Thus, a person is said to arrive; then the person is given a name. A 'certain place' is reached; then the place is named. Similarly, an animal may be termed 'manu' and then, in the next sentence, further specified. The 'that manu was a rat' example quoted above is an instance of this.

'Manu' frequently occurs in conjunction with a descriptive term. So, 'manu kino', 'bad manu', might be thrown at a fractious pig, or 'manu manea', 'beautiful manu', might be used as an appreciative comment on a bird's plumage. Some combinations of 'manu' and descriptives are used often and with considerable consistency to refer to particular substantial groupings of animals. These could be regarded as important category terms in their own right.

'Manu rere', 'flying manu', corresponds in extension to the restricted 'birds and bats' interpretation of 'manu'. The term 'manu rere' can be used to dispel any of the ambiguity which might result from the use of 'manu' on its own. Some informants interpreted the descriptive 'rere', 'flying', strictly, being unwilling to speak of chickens as 'manu rere' because they were not true fliers. Flying-foxes, on the

other hand, were undoubtedly manu rere. This in no way indicated that they found the flying-fox, in overall comparison, more like the other manu rere (all birds) than was the chicken. Indeed, flying-foxes were sometimes compared to rats - but they did fly.

'Manu vaevae 'a' 'four-legged manu', is a term principally used to refer to the domesticated mammals, but not often heard on Mangaia. A more common expression for livestock and pets is 'manu 'angai', 'fed manu'. Certain birds, such as the brown noddie (ngoio), may be kept around the house or compound and can be termed 'manu 'angai' in those circumstances. An alternative expression for animals which are kept specifically as pets is 'manu 'akaperepere', 'cherished manu'. Domesticated animals are contrasted with manu rere vao, 'animals of the wild'.

'Manu rikiriki', 'small manu' can be treated simply as a descriptive qualification of 'manu', applicable, for instance, to the juveniles of larger creatures. But, when used in definition, it can assume a certain independence from 'manu'. Animals such as spiders, centipedes, or lizards which might only hesitantly be defined as 'manu' would more readily be said to be 'manu rikiriki'. 'Manu rikiriki' may be used to refer to a vast and diverse collection of small creatures, lizards, insects, myriapods and other lesser arthropods. These can be seen as peripheral to the broadly interpreted 'manu' category, more closely linked to each other than to the 'true manu' of its core.

An additional descriptive gives 'manu rikiriki torotoro 'aere', 'small manu that crawl', used as a sweepingly general term for the small creeping or crawling (as opposed to flying or jumping) creatures

inhabiting all parts of the island in large numbers - ants, millipedes, centipedes, etc..

'Manumanu' is the reduplicative diminutive of 'manu'. This term covers animals (insects and terrestrial arthropods) of very small size. For some Mंगाians the category overlaps with 'manu rikiriki'. Once more, there is considerable variation in the use of the category term. Certain informants imposed very severe limits upon the size of creatures acceptable as 'manumanu', such that larger insects would be excluded from the category. One interesting result of this would be that only some of the butterflies and moths termed 'pepe' could also be termed 'manumanu'. Inclusion among the pepe would not guarantee either inclusion among or exclusion from the manumanu. There is a breakdown in the transitivity of the inclusion relation which one would not expect to occur in a taxonomic structure of the type described by Kay (1971). Even informants with more tolerant size limits for the 'manumanu' membership found difficulties with the large dragonflies and sphinx moths, which although considered to resemble the bulk of manumanu were uncomfortably big.

Disagreements also emerged as to whether a 'true' manumanu should fly. Most informants agreed that they might fly, crawl, or leap. However, a few insisted that only the flying creatures could really be manumanu. I was once offered the etymological argument that they were like little 'birds', in the restricted sense of 'manu'.

Asking whether manumanu are manu is, in effect, a nonsense question, like asking whether a little tree is a little big tree, with the implications of size built into the words. An English example which gives some idea of this, though perhaps lacking in some of the force of the Mंगाian, is the relationship between 'hill' and 'hillock'. I experience a certain unease of intuition with a sentence such as, 'A

hillock is a hill', or even, 'A hillock is a kind of hill'. But I find 'A hillock is a small hill' much more acceptable. If something could reasonably be called a hill, it would not be called a hillock. Similarly, a manumanu is not a manu but is essentially the same kind of thing as a manu with a size difference. The fact some of those that claim that the largest insects are not manumanu also say that they are not manu suggests that size is not the sole factor involved, but it is the one directly implied by the reduplication in the lexeme. It is not easy to represent the relationship between 'manu' and 'manumanu' within a strict taxonomic framework, a point that will be returned to in the final chapter.

Since the vocabulary available for referring to insects and other smaller animals in no way approaches their diversity, 'manumanu' is commonly used to refer to any of a multiplicity of species not covered by more precise terminology. Informants claimed, quite simply, that it was of no interest or importance to distinguish further amongst this mass of minute small-life.

As has been suggested, the second major division of the Mangaian animal world, 'mangaika' corresponds fairly well with our notion of 'sea fish'. The term 'ika' is also used. Folk etymology suggests that 'mangaika' is a combination of 'manga', 'food', and 'ika', 'fish'. However, it is used to refer both to food and non-food fishes. 'Ika' is always used rather than 'mangaika' in certain contexts. Shoals of very young fish are invariably called 'ika tauira' (tauira = a student priest). In the language of myth and formal address, the island itself and the Milky Way are talked of as 'te ika o Rongo' and 'te ika o Tangaroa' the fishes of Rongo and Tangaroa, two gods of the traditional religion.

In a taxonomic presentation there would be only two levels of labelled categories below 'mangaika', though recognition of affinities, such as those between species of mullet or between species of trevally, would allow for the positing of higher level 'covert categories'. The dominant 'fisherman's eye view' introduces an assortment of cross-cutting categories relating to locations, fishing techniques, and fish behaviours - 'fish of the open ocean', 'fish taken by bottom-fishing', 'fish which take the bait and leave the hook', etc..

One important feature of the categorisation of fish is the recognition of development stages or size stages, each referred to by a different term. In many cases the differences noted are those acknowledged by western science as transformations of development, but in some instances they are differences of genus or species. Some informants believed that half-beaks (spp. of Hemirhamphidae) grew up to become needlefish (spp. of Belonidae), and maybe, eventually, swordfish or marlin (app. of Xiphiidae or Istiophoridae). This belief is expressed in the sequence, 'Ka riro te miromiro i te kakukaku; ka riro te kakukaku i te 'akura', 'The miromiro becomes a kakukaku the kakukaku becomes an 'akura'. This kind, of 'life-stage' sequencing presents interesting problems when one attempts to establish the correspondence between folk and scientific categories. Within their system of developmental stages Manganians may recognise entities which, in terms of scientific zoology, are distinct species, but interpret them quite differently. When the contrasts between creatures are accompanied by certain common features (the fishes in the example just given all have bony elongations of the mouthparts, relatively elongated bodies, and similar colouring) and the commonly seen individuals of the various species concerned would constitute different portions of one size sequence, there is a tendency for the animals to

be seen as the developmental stages of a single organism, rather than as a group of related organisms. What is considered to be a separate entity in the scientific taxonomy may indeed be referred to by a distinct Mangaian term but, at the same time, be interpreted only as one life-stage of an animal.

'Mangaika' is used to refer generally to all collections of marine fish (with the possible exception of those composed largely of eels). It is also used as a general term in cases of indeterminacy through lack of sensory information or lack of knowledge. In these respects it resembles 'manu'. However, unlike 'manu' it also refers to a category of food. Utterances such as "Ka kai au i te mangaika", "I will eat fish", are common enough. An eaten manu would normally be specified. Eaten fish may, of course, be specified, but are so less consistently. There is a parallel tendency in English for flesh foods to be more regularly differentiated than fish. The taking of fish is referred to as 'tautai mangaika'. The term 'tautai' is principally connected with fishing, though it is also used in relation to the taking of creatures which are not considered to be mangaika such as crabs, shellfish, and possibly even rats.

There is uncertainty and disagreement about the precise boundaries of the 'mangaika/ika' category. Doubts were often expressed as to whether sea eels could strictly be said to be mangaika. The position of the octopus ('eke') was even less clear. Fresh-water eels (tuna) and gudgeon (kokopu) were excluded from the 'mangaika' category by some informants, and certainly seen as bad examples of mangaika by others. Curiously, though 'ika' and 'mangaika' are always said to be equivalent, the freshwater fish were more readily accepted as 'ika'. They are certainly referred to as such in certain 19th-century myth texts (e.g. Gill, n.d.).

Turtles ('onu) are another marginal case. In many instances they are accepted as 'mangaika'. 'O teia mangaika e 'onu 'are e kai teta'i tangata ua atu mari ra o te ariki anake' - 'This mangaika the turtle, is eaten by no man but the ariki' states one legend text. But informants had their reservations. While the turtle clearly belonged to the environmental domain of the mangaika its distinctive physical features were fully appreciated. It was suggested, " 'Are e mangaika tikai', "It is not a true mangaika", but no other more suitable category was proposed. It was not classed with the crustaceans, as is the case in Tikopia (Firth, 1967).

The cetaceans (to'ora, a'angu, ta'airangi and tutu) are generally considered to be mangaika. But, again, they were recognised to differ from the majority of 'true mangaika'. The one distinctive feature most consistently referred to was their audible breathing through a hole (puta).

Beyond the major divisions of manu/manumanu and mangaika, there are Mangaian terms to refer to a number of lesser, but still broad, groupings of animal life.

Karai'i - Crabs of both land and sea. Some informants made the distinction between 'true crabs', and 'unga', hermit and coconut robber crabs.

Koura - Other crustaceans, lobsters, shrimp, prawns, etc., both in the sea and in fresh-water.

Rather less extensive, there are:

Rori - Most sea-cucumbers, bêche de mer, from reef and lagoon; and possibly:

'Eke - Cephalopods, octopus and squid, which are often excluded from 'mangaika'.

Similarly, 'tuna', fresh-water eels, and 'kerekere', most sea eels, are regarded by some as independent of 'mangaika'.

However, much of the Manganian organisation of the animal world is covert, important broad categories not being directly reflected in the terminology. There are groups of animals which are not covered by any of the terms given in this chapter. The details of categorisation will be explored in the following four chapters.

External influences on terminology and categorisation in the post-contact period

Cook Is. Maori and English are now the two languages of administration and education. English predominates in secondary education. There has been a tendency for the standard Cook Islands Maori, exemplified in official and educational publications, to be biased towards the dialect of Rarotonga. The spread of the Rarotongan dialect has a history reaching back into the last century. It is clearly a possibility that, with the linguistic and cultural changes of the past one hundred and fifty years, Manganian animal categories have also

changed considerably. Since I will wish to see how pre-contact animal symbolism relates to the general categorisation of animals, as seen from the study of present-day Manganian categories, it is essential to make some comment on the probable direction and extent of such changes.

The earliest reference to a Manganian animal term comes from the very first recorded European contact, that of Captain Cook in 1777. Cook reported of a Manganian visitor to his ship:

As soon as he got out of the Cabin he happened to stumble over one of the Goats, as great a hurry as he was to be gone, he stopped looked at it and asked Omai what bird it was; Omai not giving him an immediate answer, he asked some of the people on deck the same question.
(Beaglehole, 1967:80)

It has been generally accepted that the term used on this occasion was 'manu'. Cook was familiar with the Tahitian 'manu', 'birds and flying things', and was surprised that the Cook Islanders also used the term to refer to land animals (see Beaglehole, 1967:80n). It seems that the Manganian category 'manu' was flexible enough to be extended to an entirely unfamiliar quadruped. A broad grouping of creatures of land and air was clearly a traditional feature of categorisation.

Knowledge of Manganian animal terms and categories in the 19th. century is limited, relying very much on the works of William Wyatt Gill (see bibliography). In the course of his books and articles, Gill describes briefly and gives Manganian words for more than forty creatures. As far as can be judged from this small amount of information, the correspondences between the animal world of the Manganian's of the last century and those of today are strong. All but

one of the terms mentioned by Gill continue to be in common use and their reference has remained relatively stable.

For example:

Mangaian Term	Gill's Identification	Identification 1976-7
<u>Tuna</u>	Fresh-water eels (1876a:77)	Fresh-water eels
<u>Manini</u>	Small, black-marked lagoon fish (1876a:91)	Convict Tang, a black-striped fish
<u>'Api</u>	Black lagoon fish (1876a:91)	Dark surgeonfish of the lagoon
<u>Kokopu</u>	Small, brown fresh-water fish (1876a:118)	Fresh-water gudgeon
<u>'Ue'ue</u>	Black beetles (1876a:204)	Cockroaches
<u>Mo'omo'o</u>	Blackbird (1876a:205)	Spotless Crake, a small, black bird
<u>Moko</u>	Lizards (1876a:242)	Lizards
<u>Tupa</u>	Burrowing land crab (1876b:136)	Burrowing land crab
<u>Pu'i</u>	White sea eel (1876b:273)	<u>Cardisoma</u> sp. Pale grey conger eel
<u>Veri</u>	Centipedes (1876b:308)	Centipedes and Millipedes

Gill's (1885) account of the development of the swordfish closely parallels the Mangaian account of life-stages mentioned in the previous section. In general, it may be said that the ethnozoological information collected by Gill in the mid-nineteenth century can, largely, be reproduced from present-day informants.

The last century saw the coming and the growth of a missionary education system. In its earliest stages this centred upon the development of literacy for the appreciation of religious texts. Biblical translations have had a lasting impact upon the language of the Cook Islands. When the first 'native teachers', Davida and Tiere, were

landed on Mangaia in 1824, they carried a portion of the New Testament in Tahitian. This Tahitian version was to be superseded by the progressive translation of the Bible into Cook Islands Maori. By the 1850's a complete Cook Islands Bible was available. The work on this Bible was centred on the Rarotongan mission, which had become independent of the Tahitian mission of the L.M.S. in 1839.

Understandably, it was the Rarotongan dialect that predominated in the translation, though, in their search for breadth and depth of expression, the translators did employ words from other dialects encountered in offshoots of the mission and produced a number of coinages.

Key areas for considering the impact of the Bible upon animal categorisation are, naturally, the Books of Genesis and Leviticus, where the Biblical classification is most clearly set out. Certain of the category terms occurring in Mangaian speech correspond closely with those in the translation of these Books.

Genesis 1.28 refers to 'te au mea ora katoa e torotoro aere ua ki rungao i te enua nei', 'all the living things that creep upon the earth'. The current use of 'mea ora' or 'apinga ora' to refer to the most inclusive grouping of living organisms has been noted. Outside the religious texts there is a tendency for 'mea' to be directed towards abstract objects, while physical objects, including animals, are 'apinga'. Clearly these expressions were readily formulable in Mangaian and are quite likely to have been employed in the pre-Christian era. But, equally, their modern use leans heavily upon the Biblical conception, and they are most likely to be heard in religious addresses. The more widely used 'manu rikiriki torotoro'aere', 'little animals that creep', may well also owe a debt to Genesis 1.28. In

addition, the expression 'mea torotoro' 'creeping things' appears repeatedly in other verses. For example:

Genesis 1.25 Cook Is. Bible

Anga iora oki te Atua i te au manu vaevae a i te enua i to ratou tu, e te au puaka i to ratou tu, e te au mea torotoro katoa ki raro i te one i to ratou tu: akara akera te Atua i te reira e te meitaki ra

Genesis 1.25 Authorised Version

And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that it was good.

In the verse just quoted, there also appears the expression 'manu vaevae 'a', where the Authorised Version gives 'beast of the earth'. Since this is now used to refer almost exclusively to non-indigenous quadrupeds, a Biblical origin seems very likely. Only rats and lizards could conceivably have been included within a category of four-footed creatures prior to European contact.

There is some evidence for a changing relationship between the categories of 'manu' and 'puaka'. The term 'puaka' and its cognates are widely distributed in Polynesia and are usually accorded the meaning 'pig'. This is the present case in Mangaia and the rest of the Cook Islands. However, in the Cook Is. Bible, 'puaka' occurs where the Authorised Version gives 'cattle'. The present Rarotongan term for cattle is 'puakatoro', either interpreted as 'puaka that wanders about' or 'horned puaka'. Similarly, the Rarotongan 'puakani'o', 'goat', and 'puakaoa', 'dog', are also based on 'puaka'. Horses are now known in Rarotonga as 'oro'enua', but in the Rarotongan Maori dictionary of

Stephen Savage (which, although, published in 1962, was researched in the early decades of this century) appears as 'puaka-oro-enua'.

The entry for 'puaka' reads:

- n. a general term for quadrupeds: hyphenated with the appropriate attributes, denotes a particular animal.

A comparable very generalised use of 'puaka' can be found in a small instructive booklet 'E lamepa iti na te tamariki' - 'A small lamp for schoolchildren', apparently written by a missionary on Mangaia in the late nineteenth century (Harris, n.d.). This begins with the Biblically flavoured passage:

Kua anga te Atua i te puaka, te pa manu, te moa, te ika, e te toke. Kua angaia te puaka kia aaere na runga i te enua

given the parallel translation:

God made the beast, the bird, the fowl, the fish and the worm.
The beast was made to walk upon the earth.

It is impossible to say whether this rendering of 'puaka' as 'beast' reflects the actual usage in the speech of the period or merely a convenience of the missionary translator. However, the existence of the 'puaka' based terms in Rarotongan does suggest some generalisation of reference to introduced domesticates. In Mangaia the pig itself was an introduction. Only two of the 'puaka' based terms entered the language of Mangaia where the 'k' was dropped to produce 'pu'ani'o', 'goat', and 'pu'atoro', 'cow'. Beyond religious literature, there is no evidence for a broad 'puaka' category in Mangaia today. The introduced quadrupeds are fully incorporated among the 'manu' as

the principal forms of manu 'angai, 'fed manu'. It seems that the wider application of 'puaka' seen in the missionary literature, and presumably implied in the language teaching of their schools, either never caught on conversationally or has faded away rapidly. 'Manu' persists as the dominant category of land animals.

The dietary restrictions of the Book of Leviticus influence the eating habits of Cook Islands Seventh Day Adventists. There is a small Adventist congregation in Mangaia, not strongly represented in the village within which I mainly worked. Strict Adventists attending a feast will receive chicken rather than pork in their allotment of food, since they consider pigs unclean. There are also restrictions upon them with regard to the unclean category of 'fish without scale', the Bible rendering 'fish' as 'ika'. The octopus may be seen as an instance of this category. Some of the most sensitive of Cook Is. Adventists would refuse even to touch such a creature. For them, the position of the octopus has been clarified with the help of missionary interpretation to make it clearly anomalous rather than doubtfully marginal.

Besides the domesticated food and household animals, the missionary and colonial periods saw the introduction of a number of other species, either deliberately or by accident, which had to be accommodated within the Mangaian view of their animal world. But, these introductions have posed no real challenge to the indigenous categories. Amongst the mammals, the invading Rattus rattus has supplanted its smaller predecessor (probably the Polynesian rat, Rattus exulans) and other rat or mouse species may be present. However, the traditional term 'kiore' has been used to cover all introductions, with some distinction of kiore types (see Ch.6-23.).

Apart from the chicken and a type of duck no longer kept on the island, the only new bird species is the mynah (Acridotheres tristis) which was not successfully established on Mangaia until the 1960's, having been introduced as a pest control. It is felt to have all the features of a true manu (rere). Similarly, the introduced food fish of the inland waters, Tilapia mossambica is widely accepted as an ika or mangaika, indeed, rather more readily so than the native fresh-water eel and gudgeon. This seems to be connected with its morphological similarity to 'true mangaika' such as the Pomacentrids.

Several insect species have been added to the Mangaian fauna in the last century and a half. Honey bees, Apis mellifera were brought to Mangaia by the missionaries and it is quite likely that the large, yellow social wasps of Polistes sp. were also a late nineteenth century arrival (see Wragge, 1906). Both these creatures have been accommodated in the category 'rango', that of the native flies, wasps, and bees, the larger Diptera and Hymenoptera. Some of the cockroach species now found on Mangaia are also likely accidental introductions from ships. Most are referred to as 'kokoroti', clearly a coinage. However, the old Mangaian word 'ue'ue' is applied to at least some cockroaches. Kokoroti were invariably described as being like 'ue'ue' and many informants regarded the two categories as equivalent. Considering insects generally, while there is considerable uncertainty and variation of intuition in determining whether the more recent arrivals are manu, manu rikiriki, manumanu or none of these, such doubts are also expressed in relation to the categorisation of indigenous species.

Travel and school natural history teaching have made Mangaians well aware of a world of animals beyond the boundaries of their island. For the more exotic fauna English terms and coinages are in use. The

use of the term 'animara' is common, especially among school-children, this being coined from 'animal'. The lists of animara offered included such exotics as araketa, 'crocodile/alligator', and liona, 'lion'. Some of the coinages are very clearly the creations of the missionary educators, drawing on their knowledge of classical languages and Hebrew - e.g. moko rana from the Latin 'rana' = 'frog', rango tepura from the Hebrew 'deborah' = 'bee', ovi from the Greek 'ophis' = 'snake/ serpent'. Yet, despite the years of missionary and post-missionary teaching and an increasing awareness of a wider zoology and of the basic animal categories expressed in the English language, there is little evidence that these have produced major changes in the Mangaian view of the creatures in their immediate natural environment.

There has been a limited interaction between Mangaian and English category terms. Bilingual Mangaian commonly accept 'manu rere' to be equivalent in meaning to 'bird'. But, flying-foxes (moa kirikiri) are manu rere. A few English-speaking informants spoke of flying-foxes as 'birds'. Here, the Mangaian category imposes itself upon the English. Conversely, it seems that the English category of 'insect' is beginning to influence the Mangaian conception of 'manumanu'. One informant, reasonably fluent in English, presented me with the remarkable argument that though some insects were too large to be manumanu, insects were 'manumanu' therefore the large insects must really be manumanu.

Brief investigations on Rarotonga suggested that, with some minor differences, the animal categories in use there were very similar to those of Mangaia, though there were substantial differences in the detailed terminology. The impact of the Rarotongan language is unlikely to have altered profoundly the structure of the Mangaian

animal world. The essential similarity of categories appears to reflect a shared cultural tradition rather than recent influences. As far as can be judged from the limited evidence, there are basic similarities with much of eastern central Polynesia. As far as terminology is concerned, though Mangaiaans are often aware of Rarotongan alternatives, they persist in their use of their own category terms.

The available evidence implies a marked continuity in Mangaian animal categorisation over the past century and a half. The Bible has produced some new formulations but, apart from the coinages relating to particular exotic creatures, these build upon existing categories. 'Manu vaevae 'a' for instance, is a descriptive refinement of 'manu'. Of the introductions, the most important have been the domesticated mammals, which are now considered almost as typical of the 'manu' category as the birds.

Requests to "Tell me all the manu you know" frequently elicited lists beginning with the terms for the introduced domesticates (puaka, pu'ani'o, etc.). But, Cook's experience suggests that such creatures would have been readily recognised as manu on first acquaintance. Their position, with the birds, as manu par excellence is something new for that category, their acceptance as manu, in itself, is not.

A maximum of interference might be expected from the folk categories expressed in English, a language of instruction for more than a century. Nevertheless, the broader (higher level) Mangaian animal categories remain strikingly distinct from their nearest English counterparts. 'Manu' continues to incorporate birds and land animals. Whales and turtles continue to be grouped with the fish as 'mangaika'. A category such as 'shellfish' has only a covert Mangaian counterpart. Knowledge and beliefs about animals among Mangaiaans still owe less to the school-room than they do to direct observation of the natural

environment. The contention that half-beaks grow up to be needlefish and the belief that some conger eels are born from sea-cucumbers are not the stuff of school natural history lessons. But they are founded in actual experience of the animal world. Such beliefs may no longer be universally held in Mangaia, however they are still part of the currency of ideas about animals and an indicator of the extent to which the local conception of the animal world has managed to maintain its own character.

The nature of talk about animals

It is hardly surprising that direct discussion of animal systematics is not a feature of Mangaian conversation. Indeed, the term 'systematics' is singularly inappropriate to the consideration of animal categories expressed in the Mangaian language. These do not display the systematic relatedness characteristic of the categories of a scientific classification. Mangaian classification is seldom thought of in the same holistic terms as the classifications of zoology. The relations between different levels of generality are frequently far from simple.

It became clear that informants could make perfectly adequate use of familiar terms such as 'manu', 'uru'apuka' (certain grasshoppers), and 'moko' (lizards) without being certain whether uru'apuka and moko could be said to be manu by definition. The questions that I posed concerning the relations between levels, questions of the form "Is X a (kind of) Y?", often seemed to require a novel speculation on the part of my informants. That is not to say that such questions were not often answered instantaneously. There was

never the slightest hesitation in declaring the majority of sea fish to be mangaika or any bird to be manu. This supports the idea that some categories are 'better' (more typical) members of the broader categories they fall within. For Mंगाians, 'kota'a' (frigate bird) is a far better example of 'manu' than 'toke' (worm). Degrees of typicality were not only reflected in an individual's comparative decisiveness about the attribution of categories but in the variation in the accounts of different individuals. A core of 'typical' members remained through all listings of a category's membership.

The existence of areas of indecision in category attribution also strongly suggests that memory storage in taxonomic form is, at best, partial, even for familiar categories. In effect, for much of the time, the categories of different levels of generality operate within the language quite independently of each other. They have different tasks to perform in day to day situations. The use of the most inclusive terms may not require great precision of reference when in certain contexts. It has been noted that when some informants used 'manu' to talk of an informal collectivity of species, or in conjunction with a descriptive qualification, they might include within its reference categories of creatures that they would not claim to be manu by definition (i.e. they would not confirm 'X is a manu'). It is clear that categories may be more or less tolerant with regard to membership depending upon what is expected of them in a specific context.

The information to be gained from simple statements of inclusion of category within category is often very limited. To be informed that the karevareva is a mangaika tells one very little of the creature except that it almost certainly lives in the sea and is quite likely to conform to a basic 'fish' body form. Descriptive information can, of course, be added — 'e mangaika o te roroka' 'it is a mangaika of the

lagoon', perhaps a manu might be further specified as a 'manu rikiriki torotoro'aere', 'small crawling manu', as a 'manu kakati tangata', 'manu that bites people', or whatever. But, often, comparison with another more familiar organism is used. Repeatedly, the answer to my question "What is a karevareva?" , " E a'a te karevareva?", was "Mei te kokiri rai te karevareva" , "The karevareva is like a triggerfish".

Knowledge may be built up by defining resemblances rather than by specifying broad category membership or going into detailed description. This process is common enough in our own experience. The effectiveness of such comparisons for the Mंगाians depends on the fact that there is a substantial core of visually very familiar creatures. Indeed, much of their animal terminology is acquired in conjunction with experience of the organisms themselves. Even for young children, the house and compound can provide experience of a wide range of creatures a considerable variety of fish and sea-foods, which are brought in for family consumption. Involvement in the collecting of animal foods may begin very early in life. I have seen children under three taking and consuming shellfish from the shoreline rocks, accompanied by older children and being corrected by them in their identifications.

To actually express the idea of shared category or 'kind' in Mंगाian Kinship analogies may be used. I have heard it said that fresh-water and sea eels, though there is no single common term to refer to both, are of the same kopu tangata (family or tribe). The English term 'family' is also now used in otherwise Maori sentences. Another term, less often heard, is 'katiri', which relates to a group of descendants from a common ancestor. Such statements of kinship are accepted as figurative, though myth does indicate that certain animal groups were formerly held to be the descendants of particular spirit

beings. In myth, the term 'anau', 'birth/children/descendants', is employed (e.g. 'te 'anau ika a Tinirau' 'the fish children of Tinirau', see Ch.10). The word 'tu' may also be translated as 'kind', but it has strong implications of form and appearance. To ask "What is its tu?", "E a'a tona tu?", does not usually invite a statement of category membership, but rather a description, or often a comparison. Statements of resemblance are more common in indicating covert groupings than kinship analogy. These range from 'A te...' and 'Mei te...' suggesting general similarity, to 'Aitete ua rai te', implying virtual identity.

Considerations of animal categories and their interrelations in the abstract is rare. Rather discussion tends to revolve around the various roles that animals play in Manganian life. Different creatures are principally associated with different areas of experience. A'ai, the tuna, is food fish par excellence, central to men's fishing. Vava, the bush cricket, is strongly associated with ghosts that it is still held by a few to merely sound like a cricket and to have no physical form. Pata, the aphids, are above all a pest of the taro crop. The need for the orderly presentation of categories in this thesis must, to some extent, distort the Manganian vision of the animal world, concentrating, as it does, upon principles of order which are seldom called upon to come into play together and make explicit the organisation of the entire field. But, at the same time, I will try to make clear some of the contexts in which animals become important to the Mangaians and in relation to which they are talked about.

CHAPTER 4

FISHING 1: INTRODUCTION, FISH AND MEN'S FISHING.

From their earliest years, present-day Mंगाians are familiar with tinned fish. Mackerel, herring, and, less frequently, salmon, all make their metal-encased appearances. Today's midden, the Oneroa village rubbish tip, bears rusting witness to the popularity of the punu mangaika the 'tin of fish'. There is no doubt that the introduction of new animal-food resources and the availability of shop-bought foods have greatly reduced the scale of Mंगाian fishing activity. Yet, economic considerations, local gastronomy, and the positive evaluation of much fishing activity conspire to maintain the importance of fishing in Mंगाian life. The more desirable fresh fish are also a saleable commodity. However, there is only one full-time fisherman on the island and only three of 102 households surveyed claimed fishing as their principal source of income. Still, nearly every able person in Mंगाia is involved to some extent in fishing or marine-food collecting. The readily available supply of common fish and other sea-foods is especially important to those households with low cash income, particularly those having little or no pineapple-growing land and where no member holds a public service job.

Of 80 male household heads for whom information was gathered only 4 very elderly men and one local entrepreneur, at the time strongly involved in agricultural projects, did not go fishing. The extent of the fishing activity of the other 75 was very varied, but the

fact that between them they own 31 one-man canoes, often shared, is indicative of the continuing interest in fishing. The use of canoes is part of the more complex, time-consuming and prestigious types of fishing activity. Inquiries among senior female household members also indicated a continuing involvement in women's fishing/collecting. Very low tides always brought numbers of women and children, and some men, to the lagoon and onto the reef for sea-food collecting. Children and adolescents are at least as active as adults in exploiting lagoon resources.

An informal poll of the food preferences of one hundred informants (who answered the question, ' E a'a to'ou kai reka roa atu?', 'What, for you, is the most delightful/delicious food ?') indicated that fish ran a poor second to the phenomenally popular taro but was given preference over other animal foods. The prestigious feasting animals, the pig and goat, were surprisingly little mentioned. The high/low range of sea-food evaluations exhibits a partial correspondence with each of the large/small, ocean/shore, men's fishing/women's fishing dimensions. With regard to eating quality, a sufficient oiliness of flesh seems to be of particular importance to Mंगाians. (Food preferences are further discussed in Ch.8.)

Much fishing is regarded as pleasurable in itself, certainly more so than most agricultural activity. Young men who have been working with the taro or pineapple look forward to the chance of going spear-fishing. Parents sometimes have to restrain children from wandering off to fish or to collect other sea-food when less enjoyable tasks such as pig-feeding are to be done. Women's fishing/collecting may not have as great a popularity as men's fishing, but, nevertheless, many women suggested that they would go more often to the lagoon if time allowed.

The vocabulary of fishing is substantial and reflects the diversity of techniques and locations. The most inclusive term 'tautai' is applied generally to the obtaining of food from the lagoon, reef, and deep sea. It is also frequently applied to the fishing of eels, gudgeon, tilapia, and prawns in inland waters. However, some informants expressed doubts about the correctness of this usage. 'Tango' was said to be the appropriate term for the fishing of fresh-water eels on set lines, and it was not clear whether tango could, strictly, be considered a form of tautai. The wider application of 'tautai' reported by Buck (1944: 247), in which 'tautai 'enua', 'land tautai', was used to refer to the taking of land crabs, does not seem to be part of present-day common usage, though it was familiar to some older informants. The term for line fishing (or, at least, the lighter forms of line fishing), 'i' or 'i' does appear to traverse the inland water/sea distinction. It is possible both to 'i kokopu (gudgeon) around the taro swamps and to 'i ku (soldierfish) along the reef. However, for the purposes of discussion in this and the following chapter, distinctions will be drawn between sea and fresh-water fishing, and, within marine fishing, between tautai tane, 'men's fishing', and tautai va'ine, 'women's fishing'. The latter distinction was made explicitly by all my informants. But, before considering these sets of activities in the modern setting, something should be said of the history of Mangaian fishing practices.

Tautai a te 'uitupuna - Fishing of the ancestors

Organisation and ritual

Gill (1880:104) refers to a 'fishing season' from September to December. This seems to have been a period in which there was extensive co-operative canoe fishing. The season began with a ritual involving the Ruler of Food, the priest of the god Moko'iro, in his capacity as controller and ceremonial distributor of food resources. In the pre-mission period some two hundred canoes would assemble before the site of the present-day Oneroa village. Each would be provided with a 'fisherman's god', a bow of coconut leaf tied with sinnet, representing Moko'iro and considered to have power over wind and waves. In addition, the Ruler of Food placed four symbolic 'wind stoppers' in his own canoe and performed incantations to ensure calm weather. (For details of these procedures see Buck, 1934:146-7.)

The night of the fishing had been chosen beforehand as being at the particular stage of the lunar cycle suitable for the taking of certain kinds of fish. In general, the seventeenth and twenty-eighth nights after the dark of the moon were considered favourable for fishing (see Appendix 3). The fishing of the first night of the season was performed in honour of eldest sons, who would eat part of the catch and offer a portion to their particular atua (god). Similarly, the second night of fishing was in honour of eldest daughters, who also made offerings to specific atua. Following this, restrictions were removed and everybody ate freely making only a small token-offering of one fish to an atua of the sea.

A similar set of events are said to have been part of the preparation for a major feast (Gill, 1885:102-3; Buck, 1934:147).

On the first two days of fishing fish were taken from dawn to noon. The catch of the first day was shared with eldest sons, that of the second with eldest daughters. On the third night fishing for the feast began in earnest. Each tribal group added to the fleet a vaka tuarangi a canoe sent out in honour of their god. In addition, each canoe would contribute one fish to the offering for the tribal marae (ceremonial site of a particular god). When a canoe returned without fish, the fisherman would offer a pebble of coral gravel and the canoe was known as a vaka kirikiri, 'a gravel canoe'. The white gravel, kirikiri, is given a certain positive aesthetic valuation. It was, apparently, used to surface some marae and is still spread around houses to enhance the appearance of the site. When a token offering of fish, the valued product of the sea, was not possible it was replaced by the offering of a pseudo-valuable of the shore, the kirikiri.

Besides appeals to particular tribal deities for fishing success, and offerings made to Moko'iro as god of the fishing fleet and of food in general, there were at least two minor atua specifically concerned with fishing luck. The goddess Rua-tama'ine had an offering basket near the home of the Shore High Priest at the marae Orongo. A fisherman proceeding to the sea would leave a piece of cooked taro in this basket. Returning, he would leave a fish, or, if unsuccessful, a pebble (Gill, 1894:37 Buck, 1934:167). Similar offerings were made at the rock of the fishing god Rua'atu.

Canoe fishermen returning to shore would share a meal of fresh fish, the a'ai tara'u, most contributing one fish from their catch, the leader giving two. Those whose fishing was unsuccessful nonetheless shared in this food. When the fishermen returned to their dwellings inland there would be a distribution of fish to their relations and tribute of finer fish to chiefs. Exceptional catches of any kind were especially

appropriate as chiefly offerings. (For instance, in legend, O'iri takes a large and dangerous tapairu octopus he has captured as tribute to his chief, presumably the tribal ariki. Gill, 1876b:290.) Certain 'fish', specifically the turtle, 'onu', and swordfish or marlin, 'akura', could only be offered at the marae Orongo, for the god Rongo and the use of the Shore High Priest. No ordinary man was permitted to eat these creatures. The significance of the rights to offerings of fish, and of the rituals of distribution of large stranded fish, will be considered in the discussion of myth and symbolism in Chapter 10.

Buck's informant Aitena stated that the Ruler of Food would either join the fishing fleet himself or send a makona, a highly skilled fisherman, in his place, to observe the weather signs and give instruction as to when the fleet should return to the lagoon (Buck, 1934:147). The Ruler of Food, in this role, was known as the tirango moana, the title implying a knowledge of fishing ritual, and of sea and weather lore. His stand-in would also be known by this title.

An important part of the weather lore was the location of the kuonga. The kuonga is an area of maximum calm, where there is most likely to be a tai mate very still sea conditions (literally, a 'dead sea'). Its position at a particular time of the year could be judged from te moe o te ika, 'the lie of the fish', that is the alignment of the Milky Way which is known as 'Te Ika a Tangaroa', 'The Fish of Tangaroa', or 'Mango Roa', 'The Long Shark'. Unfortunately, even in 1929-30, Buck was unable to learn how, exactly, such judgements were made. However, the term 'kuonga' was still used by fishermen in 1976-7, and there still exists a theory of the annual rotation of a region of calm, now thought of in terms of the European calendar. In May, June, and July the kuonga is said to be in the northern part of the island, at which time octopus are especially plentiful on that coast.

August, September, and October see a movement around the west coast, by way of the village of Oneroa, to the south coast. (Note that Gill's 'fishing season' began in September at Oneroa.) From December to February the kuonga will move round by Tamarua in the south-east, and by March is on the east coast. Buck (1944:211) states that it was the head of Mango Roa that was said to indicate the position of the calm. The most complete, though tentative, account that I was given (by Ma'arateina Atatoa, 51, of Oneroa) suggested that the island, The Fish of Rongo, was conceived of as lying directly below the Milky Way, The Fish of Tangaroa. The heads remained above each other but the tail of Te Ika a Tangaroa rotated through the seasons, indicating the direction of the kuonga. Other informants proposed a connection between the line of the Milky Way and the prevailing wind direction. So, however the system worked in detail, it seems probable that the annual apparent rotation of the Milky Way was used as an indicator of seasonal shifts in prevailing winds and consequent changing positions of leeward calms. It was said that even terrestrial creatures, such as rats or land crabs, might follow the kuonga.

Further evidence of traditional fishing organisation is fragmentary. There is a reference to individual canoe fishing in the traditional tale of Autea and Mouna (Gill, 1880:65) in which a man goes out on his own to fish nanue, rudderfish. From the mission period there is an account of a fleet of twenty-five to thirty canoes coming together at dusk, at the edge of the reef, to take the flying-fish (Gill, 1876b:110). There also seems to be a long-standing tradition of co-operative effort in the use of fish poisons.

To quote Buck:

The whole community shared in collecting and preparing the narcotizing material, (crushed stems and roots of Tephrosia piscatoria and the grated fruit of Barringtonia). After the pool had been treated and the requisite time for affecting the fish had elapsed, a crowd of men, women, and children dashed into the pool with baskets, dipnets, and, in modern times, spears. Though each person was anxious to obtain the greatest number as mark of skill, the whole catch was heaped up together and divided (tu'a) into shares for the several cooperating families. Extra large fish were added to the shares of families of high rank. (Buck, 1934:145)

The pools referred to are the puna just within the reef ridge.

A seasonal fishing event of major importance to all Mंगाians was the coming of the ika tauira the shoals of juvenile fish.

Gill comments:

The two months preceding the arrival of sprats are called 'te karaii ko'a' or 'time of exhausted crabs', they having made their way from the rocks to the sea to spawn. In like manner, the interior of man is supposed to be empty and weak until the arrival of the sprats gives new life. (Gill, 1876a:316n.)

and again:

A native pastor once remarked ... that there are two things for which every man, woman, and child on Mंगाia will turn out: one is to collect sprats The sprats arrive with the new moon in February; but stormy weather may cause the long, silvery trail shoals ... to pass our islands. This is very tantalizing to those who have been preparing nets to catch sprats, and neat bark

sandals to protect their feet in running along the reef after them. (Gill, 1876b:52.)

Both men and women exploited the resources of lagoon and reef, but the outer edge of the reef was the limit of female activities. Even within the roroka it was the men who deployed the larger nets. They also engaged in night fishing. A man with exceptional knowledge of lagoon and reef topography was known as 'tautai tonga tuatua 'akau', 'fisherman knowing the depths of the reef' (Buck, 1944:211). Such knowledge was especially useful when taking fish which favour dark nights, on which the lagoon can be difficult and dangerous to negotiate. However, it seems that torch-light fishing of reef and lagoon, ramarama, was formerly an exclusively female activity (Gill, 1890a:332). Torch-fishing was said to have been invented by the goddess Uti, who emerged from the underworld of 'Avaiki on damp nights, bearing a lighted torch. (Ignis fatuus claims Gill; 1876a:130.) Women's torch-fishing expeditions are described in legend (eg. Gill, 1880:114; 1876b:332).

Information on the former practices of fresh-water fishing is even more sparse. The traditional objects of this fishing were eels, tuna gudgeon, kokopu and a variety of small crustaceans, koura vai. Some eels were taken on gorges. There is also mention of netting. These would almost certainly have been all-male activities, since both fresh-water and sea eels were forbidden (tapu) to women (Gill, 1876a:79; 1876b:279). Doubtless, there were other techniques of eel-catching similar to those in use today. Co-operative effort went into the netting of kokopu. Buck (1944:244) talks of forty men being engaged in this rutu kokopu. These gudgeon were also angled for by boys, the activity having a mythical origin as the invention of Tara'uri, a son of the god Tangaroa (Gill, 1876a:118). Kokopu and prawns could be

taken at night by small groups of torch-fishing women (Gill, 1880:125). Groups of women also engaged in the taking of the small crustacean 'ea'ea at Lake Tiriara in the Veitatei district.

There were also some predominantly terrestrial crustaceans to be sought after as food. Most prized were the massive coconut crabs, Birgus latro. Men, probably, as now, either working alone or in small groups, searched out these crabs on the makatea plateau.

Summarising, the deep sea was, and remains, a pre-eminently male domain. In pre-contact times there were periods of the year in which large canoe fleets would come together under the aegis of the Ruler of Food. Most recorded fishing ritual is connected with such large-scale co-operative canoe fishing, though those fishing on their own also made offerings at tribal marae and to fishing deities. All catches, even those of women collecting within the lagoon, were, at least potentially, a source of offerings to chiefs. We know very little of the way in which co-operative effort in fishing was mobilised. The generally recognised religious authority of the priest of Moko'iro was, probably, of major importance in the coming together of large multi-tribal fleets. The Ruler of Food was also instrumental in the imposition of restrictions (ra'ui) upon the exploitation of fishing grounds. Smaller fishing parties were, presumably, formed from individual households, or groups of neighbouring households. In the mission period, resettlement in true villages closer to the sea, and the new framework of church organisation, provided new bases for recruitment into many different activities, including communal fishing. Whole villages are said to have joined in major fish poisoning sessions. Smaller fishing fleets, such as the flying-fish fleet mentioned earlier, were still formed. Through to the present day, lagoon and reef have been fished by both men and women, with some differentiation of activities, which will

become clearer in the discussion of current practices. Though expert fishermen might direct a fishing expedition, no very clear units of organisation are apparent from the literature, either for lagoon or inland fishing.

Changes in Fishing Equipment.

Since fishing equipment both serves to set the form of the interaction by which a fish comes to direct personal knowledge, and reflects the shared stock of knowledge of fish behaviour and form, some comment on the contrast between traditional and modern Manganian fishing equipment seems called for. (A comprehensive account of traditional Cook Islands fishing gear may be found in Buck, 1944:176-245. This is the chief source for the following remarks.) The usual Manganian fishing canoe was, and remains, a one-man, single-outrigger dug-out. Over the last century there have been minor changes in hull form (Hornell, 1936:160) and nylon line and shop-bought paint have now replaced traditional lashings and sealants. However, the basic capacities of modern canoes must be very similar to those of their predecessors. Being of small size, some ten to fourteen feet in length, with a shallow draught, they are, despite the skill of the fishermen, difficult to handle in rough seas. Large swells can totally prevent any canoe fishing for a week or more. Most canoe fishing is done within a few hundred yards of the reef ridge, often within one hundred yards. The rapid falling-away of the reef-slope to the ocean depths makes many oceanic species readily accessible. The widening of reef-gaps with explosives has made passage to and from the lagoon somewhat easier in this century. There are now a few

small, European-style boats on the island, but these seem to have had little impact upon fishing practices. None were in regular use at Oneroa during my stay there.

Lines made from inner-bark fibre (largely that of the oronga tree - Pipturus velutinus according to Buck) have given way to shop-bought nylon fishing line. Similarly, hooks of shell, coconut shell, or wood have been replaced by metal hooks of all sizes. Little remains in the way of specialist hooks, though the angular, wooden toko hook for snake mackerel and castor-oil fish is, occasionally, to be seen. Hook size is now a matter of selection from shop stock. Formerly, hooks of a particular size might be made with a particular fish in mind. For instance, the traditional tale of Autea (Gill, 1880:65) revolves around the possession of hooks suitable for fishing rudderfish, nanue. Such small hooks were formed from the shell of ariri, a turban shell (Turbo sp. or spp.). Wooden gorges are still sometimes used in eel fishing. However, the curved gorge specifically intended for the wrasse karore, and designed to allow for this fish's habit of shaking the bait before swallowing it, is no longer in use. Karore are now taken on ordinary small hooks. Traditional hooks ranged upwards in size to the massive, wooden 'shark hooks', around ten inches in length, and intended for the larger oceanic species.

A good deal is recorded of indigenous Manganian net types. The most prestigious of these was the nariki a very fine-meshed net, said to measure six yards by four, and supported at both ends by poles. It was capable of taking large numbers of small fish in drives close to the shore. Nariki nets were chiefly property and, into the mission period, feasts were given to celebrate their completion. More widely used was the tata, a net of similar dimensions but coarser-meshed, suitable for

catching the larger lagoon fish. There is a variety of large nets in current use. The Japanese nylon nets now bought by Mangaian fishermen tend to be longer and narrower than those formerly employed. Nevertheless, methods of use have remained much the same, though large netting drives of forty or more persons are now a rarity. The long nylon nets do make it possible to net right across dynamited reef channels. Some large, home-made nets still exist, though usually formed from synthetic line. Smaller scoop and pole-supported nets, whilst the material of the mesh has changed, retain their old forms.

Generally, the evidence of the equipment suggests no major transformation of Mangaian fishing technique in the past century. Some specialised fishing gear has vanished, and the materials of the basic fishing kit are much changed. But, the capacities of this kit have not changed markedly. Probably the most influential additions are the spear-gun and mask which, over the last twenty five years, have, undoubtedly, encouraged an expansion of spear-fishing into new areas. Granted their impact, it is still reasonable to suggest that the Mangaian knowledge and categorisation of fish arose in conjunction with fishing practices essentially similar to those of the present day.

Men's Fishing and Sea Fish

This chapter is chiefly concerned with the members of the major Manganian animal category 'mangaika'. As explained earlier, this embraces the majority of marine fishes and cetaceans. Eels, turtles, and fresh-water fish, seen as peripheral to, or only doubtfully accepted as 'mangaika', will be discussed towards the end of the chapter. Most mangaika are caught in the course of tautai tane, 'men's fishing'. The distinction between women's fishing and men's fishing is sometimes talked of in terms of the contrast: tautai va'ine v. tautai mangaika - 'women's fishing' v. fishing for mangaika'. True fish are a lesser part of women's sea-food gathering (see Ch.5).

Detailed description of current Manganian fishing techniques and their classification is clearly beyond the scope of this thesis. But Manganians look at fish with the eyes of fishermen. To know a fish thoroughly is also to know the appropriate methods for catching it. Different techniques reflect different habitats and behaviours. The different fish types or age-stages may, in some cases, be contrasted not only in terms of appearance but in relation to particular forms of fishing. Some general summary of fishing methods is, therefore, necessary. The major techniques of tautai tane may be outlined as follows:-

Line-fishing Techniques

- A. **Tutau** - Stationary line-fishing in deep water, but clear of the bottom. The fisherman will position his canoe at a promising location and experimentally drop the hook to different depths attempting to find a shoal. Stone sinkers may still be used, though many fishermen prefer lead. In some tutau fishing

ground bait is released at depth, a jerk on a hitch in the line setting the chum free.

- B. **Pato** - Bottom fishing, for which lead weights (tapao) are now used. It is aimed mainly at the fish feeding near the coral bottom of the outer reef face. Pato is normally thought of as a kind of open-sea fishing, the line usually being lowered from a canoe. However, it is possible to pato fish on the reef, in some of the deeper holes and cuttings.
- C. **Tavere** - Trolling. The baited hook is dragged behind the canoe, usually along the line of the reef. This technique, carried out at appropriate distances from the reef with the correct hooks, line, and bait, can be used either for the taking of large, pelagic fish, such as the wahoo, or of the smaller fish of the upper reef-slope. Night trolling is particularly effective in catching a variety of nocturnally-active reef-dwellers.
- D. **Tako'e** - Fishing with rods of bamboo (ko'e). These highly flexible, one-piece rods, taken from stands of bamboo in the interior, are up to twenty feet in length, the line slightly shorter than the rod. They are used by men and boys standing on the outer edge of the reef ridge or casting into wider surge channels or cuttings, such as the 'harbour' at Avarua. Rods may also be used to fish the larger puna, the deep holes within the reef, or, at high tides, within the body of the lagoon.

Usually, the hook and bait are cast out and moved slightly within a small area. If there is no bite they are soon withdrawn and cast again. In the tako'e kika technique, however, there is considerably more movement. The rod is drawn sideways, dragging the bait through the upper water. This method tempts

highly active predators, such as jacks, which habitually chase shoals of smaller fish close to the reef.

- E. 'i or 'i – I have already noted the very broad use of these terms, in referring both to marine and fresh-water angling. I am not confident that 'i can be isolated as a distinctive technique. Yet it is customary always to speak of the angling of certain kinds of fish as 'i. The fishing of snake mackerel is, for instance, always 'i manga though the technique is much the same as tutau fishing (A.).

Spear-fishing Techniques

- F. **Titia** - A modern development, spear-diving with goggles or mask (titia). Serious adult fishermen may own spear-guns but, particularly among adolescents, there are many improvisations (e.g. spears of thick fencing wire driven by bands of old tyre rubber). Simple hand spears are also in use. Experienced adult spear-fishermen will hunt along the outer reef-slope, whilst the activities of the younger males are largely confined to the lagoon and puna. The term 'titia po is applied to nocturnal spear-fishing with waterproof torches.

There are no accounts of underwater spear-fishing, other than for octopus, from before the beginning of this century. It does not seem to have been a significant part of traditional fishing practices.

- G. **Patia, Ko** - Other forms of spearing. Certain fish are vulnerable to spearing near the water surface in night-fishing with torches or lamps. Others may be speared during the day in the lagoon shallows. Parrot-fish spears, twelve or more feet in length, triple-

pointed with inturned barbs, still get occasional use. The fisherman stands on the outer edge of the reef ridge and strikes fish as they rise in the water close to the reef face.

Net-fishing Techniques

- H. Pa'ei'ei – Scoop-netting in reef channels, puna lagoon channels, or in waves near the outer edge of the reef ridge. (Scoop-netting in the last area was formerly biown as ta'ata'a. Buck, 1944:230.)
- I. Ta'iti - Fishing with small nets (about three feet by three feet), supported by poles on two, opposite sides. These fine- meshed nets are well-suited for taking small fish around the upstanding coral rocks of the lagoon. The net positioned in an arc on one side of a rock, a beater, approaching from the other side, will frighten the fish hovering in the cover of the rock, causing them to flee into the ta'iti net.
- J. Tuku - Two men support the ends of a larger net (traditionally the tata or kotata and nariki nets described above) while a few chasers move in from the front and sides, striking the water, making disturbance, sometimes wielding coconut palm fronds, driving the fish into the net. With, perhaps, only three to five chasers, only a small area of the lagoon can be worked.
- K. Rautata - A technique essentially the same as tuku (J.) but involving larger numbers of chasers. In this form of netting fish may be driven right across the lagoon.
- L. 'Akatae - A long net (20 to 30 ft.) is held in position across one of the main channels by which fish enter and leave the lagoon. (The natural cuttings through the reef ridge are considerably narrower than these nets, but these are set in arcs in the shallower areas

just within the ridge.) Fish are chased towards the net. This method is most effective when the tide is going down, the water-level in the lagoon is falling, and fish which have entered it at high tide begin to leave, through the channels, for the open sea.

- M. **'Upenga moe** - Sleeping nets. Nets are set overnight within the lagoon or across the widened cuttings of the boat landings. They are inspected regularly during the night and the catch removed. Women and children may be involved in most forms of netting, particularly in driving fish.

Fish-poisoning Techniques

- N. **'Utu** - Barringtonia-nut poison. The poison is prepared by grating the kernel of the fruit of the Barringtonia tree. The gratings, enclosed in a basket or sack, are dragged through the water in some small area of lagoon, or in a reef pool (puna). The effort of preparation and the slow action of this poison limit its popularity among the villagers of Oneroa. However, given time and sufficient quantity, it is an extremely effective method of stunning smaller fish, which may then be gathered with scoop-nets and hand.
- O. **'Ora maunga** (= Hill 'ora) - Poison of Tephrosia ?purpurea a wild plant of the central hills. The poison may be prepared from most parts of the plant, but the most effective method is to form wads of pounded bark which are tucked into crevices in the sides of puna.
- P. **'Ora papua** (= Papuan 'ora) - Poison of Derris ?moluccensis a plant which was introduced into the Cook Islands in the last century by local missionaries who had worked in Papua New Guinea. This is now the most popular fish poison among Oneroans being very fast-acting and easily prepared by mashing root or

stem. It is used as 'ora maunga (O.)

There is legislation against fish-poisoning, but there has been little administrative action against it. Small puna poisonings still go on. I witnessed two and received specimens from two others. Now, it is usually the men who prepare and place the poison, but men, women, and children co-operate in gathering the fish.

Other Techniques

- Q. **Poito** – Float-fishing. A, now, seldom used technique in which baited hooks on short lines are attached to wooden floats. Floats have been used in the taking of flying-fish, and in setting overnight lines within puna.
- R. **Titomo and Mangai** - Fishing in holes within the coral rocks of the lagoon and reef. Hook and bait, attached firmly to a short line, are loosely fastened to the end of a rod 3 to 4 feet long. The assembly is thrust into deep cavities in which fish might be concealed. When the hook is taken it is pulled away from the rod. The fish is dragged out of the hole on the line. The term 'mangai' refers specifically to the taking of eels from rock holes, a technique which formerly involved the use of a gorge rather than a hook.
- S. **Pu'ere** - A very rarely used method of taking less mobile sharks by dropping a noose over the tail.
- T. **Ramarama** – Torch-fishing, or, nowadays, fishing by pressure light. As mentioned earlier, torching in the lagoon and on the reef was once a female activity. Now it is clearly also part of men's fishing. It involves the use of hand, spear, knife, and even small nets. The specialised torchlight fishing of flying-fish, using canoes and small

nets, is, and always has been, an all-male activity.

- U. **Pa kikau** (= Palm-frond enclosure) - The term 'kikau' is sometimes used to refer to large fish drives in which chasers, striking the water with palm fronds, pursue fish into the shallows. However, true palm-frond enclosures' are sometimes formed. A line of palm-fronds is constructed to enclose an area of lagoon. At high tide there is a gap by which fish can enter. At the change of the tide this is closed. Certain fish (such as rabbit-fish, Siganidae) are said to be frightened by the waving green line of fronds and unwilling to cross it. They are, therefore, contained at low tide and may be hunted-down in shallow water.

This concludes a very partial summary of fishing methods. Some techniques specifically associated with particular fish types will be further considered in connection with the fish categories described below.

Mangaian Sea Fish Categories

Deep-water line-fishing belongs to the open sea, moana. The most productive spear-fishing is conducted along the face of the reef. Bamboo rods are mainly used on the reef, 'akau. Most netting is carried out within the lagoon, roroka. These three ecological zones, moana, 'akau, roroka, cannot be perfectly differentiated in terms of the types of fishing practised in each. There are overlaps. But certain techniques do predominate in each zone, marking them as relatively distinct in terms of fishing activity.

The three zone distinction is applied to fish, informants speaking of 'ocean fish' (mangaika o te moana), 'reef fish' (mangaika o te 'akau) and 'lagoon fish' (mangaika o te roroka). These divisions should not be taken as the upper order taxa of some systematic, hierarchical classification embracing all fish categories. To ascribe a fish to one of them is simply to indicate in what area it is most likely to be seen and caught. Some fish belong unequivocally to one of the divisions. There is no doubt that tuna are 'of the ocean' or that most blennies are found near the lagoon shore. But other cases are less clear. For instance, are fish caught by trolling close to the reef face fish of the ocean or of the reef? Informants wavered and found differing solutions. The zonal distinctions cross-cut other categories based upon more general principles of resemblance. While most blennies (panako) are 'of the lagoon', there is also a panako 'akau, a 'reef panako'. Similarly, many triggerfish (kokiri) are considered to be 'of the lagoon', but there is also a kokiri moana an 'ocean kokiri'. Panako and kokiri occur in more than one zone, and no neat meshing with the habitat-based categories is possible. Informants' statements

concerning the similarity of various fish types implied covert groupings also cross-cut by the 'ocean fish'/'reef fish'/'lagoon fish' distinctions.

Nonetheless, it is convenient to adopt the basic principle of the three zone division in giving shape to the body of this chapter. In providing an account of Mangaian fish categories (in listing and describing the members of the category 'mangaika') I will begin with the truly oceanic fish and make a progression towards those of the lagoon shore. However, I will not attempt to draw hard and fast divisions between fish of ocean, reef, and lagoon, and groups of fish seen by Mangaians to be related on more general principles will be kept together as far as is possible.

Throughout the extended account of animal categories and terminology provided by this and the three subsequent chapters, the following principles will be obeyed:

1. For ease of reference, entries will be numbered. The entries of the main number sequence in each chapter correspond closely to the 'generic taxa' of Berlin, Breedlove, and Raven (see Ch.1). The listed category terms are of the order of generality most commonly used in day to day conversation. They predominate in the lists of animals given by informants.
2. Compound category terms (composite lexemes) incorporating a term listed in the main number sequence and taken to refer to closely linked subdivisions (distinct types) within the main sequence category will be listed under one main sequence head number. (So, 1. in this chapter's main sequence is A'ai, the tunas. The tuna types A'ai otava, A'ai to'everi and A'ai pirivaru

- will be listed as 1.1, 1.2, and 1.3 respectively, in secondary sequence under the head number, 1..)
3. The various terms applied to the supposed life-stages of one animal will normally be given under a single number. However, where there was disagreement amongst informants concerning the life-stage status of a particular animal form, or a particular life-stage term was connected with more than one category in the number sequence, I have chosen to make a separate entry. (For example, according to some informants, ature the silver scad, is the juvenile form of the germon, a'ai to'everi. Others believed it to be the juvenile of the jack, nato. Still others held that the ature simply grew larger, becoming known as orare. Consequently, the entries for a'ai to'everi and nato will note the supposed relationship with ature, but ature will also be listed independently in the main number sequence.)
 4. Major overt or covert groupings will be indicated by the use of headings, and the conceived relationships between categories further explained in individual entries. A schematic representation of category relationships may be found in the summaries of categories given in chart form at the end of this and the next three chapters.
 5. Where the components of a category term were given interpretation, or the derivation explained, such information will be provided, in parentheses, immediately following the term concerned; e.g. Totara (= Spiky one).

MANGAIKA

The Tunas and Their Associates

A covert grouping of sizeable oceanic food-fish centred upon the larger Scombroids, particularly:

1. **A'ai** - most tuna and germons, larger members of the family Thunnidae. Food-fishes par excellence, most a'ai are taken between 30 and 150 fathoms by stationary line-fishing from canoes (tutau a'ai, see A. above). There are a number of prime fishing locations known as 'ava a'ai', 'tuna harbours'. Fishermen use their knowledge of reef and shoreline features, or other landmarks, to position their canoes in these areas. A'ai are usually butchered as soon as they are brought to shore, and I saw only four whole specimens, all provisionally identified as Yellowfin Tuna, Neothunnus macropterus. Their captors spoke of these simply as 'a'ai'. However, at least three distinct a'ai types are recognised:

1.1 A'ai otava or A'ai tara-i-rau-ti (= A'ai with fins like the leaves of Cordyline terminalis. The leaves of the ti plant turn yellow seasonally.) Described as 'long' tuna with distinctly yellow fins, these are almost certainly large, mature Yellowfin Tuna, Neothunnus macropterus.

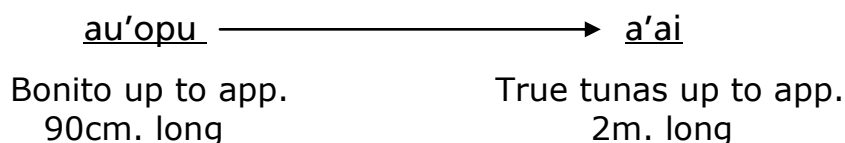
1.2 A'ai to'everi or A'ai puku-oka (= A'ai with the stomach of the Chameleon Sea Bass. It is said that this a'ai reacts to being hooked in a manner similar to that of the sea bass oka - 31. below. When it is pulled in, it will throw out through the mouth a portion of the

alimentary tract known as the 'kopu manga', 'food belly'. While this is out the fish will lie dormant, but it is slowly retracted, and, when it is fully returned to the body, the fish becomes active again. It is, therefore, very important to be certain that the a'ai puku-oka is cleanly killed before it is taken into the canoe.) Both terms refer to a fish described as 'short' in comparison to 1.1, with very long 'ears', i.e. pectoral fins. This description clearly fits a germon or albacore, one of the smaller tunas. A photograph of the germon Thunnus alalunga was consistently identified as a'ai to'everi.

1.3 A'ai piri-varu (=A'ai close to the varu. For varu see 3. below.)

The one distinguishing feature generally agreed upon for a'ai piri-varu was the large size of its eyes. It may well be the Big-eye Tuna, Thunnus obesus.

Different informants gave differing accounts of the life-stages of the a'ai. One commonly held belief was that the au'opu (mainly bonito, see 2. below) was the juvenile of the a'ai (punupunu a'ai) giving the development sequence:



Some informants gave more extensive life=stage sequences, differentiating between a'ai otava (1.1) and a'ai to'everi (1.2):

koperu → au'opu → a'ai otava
 Mackerel scad (see 25.)

ature → orare → au'opu → a'ai to'everi
 Silver scad (see 24.)
 up to app. 50cm.

(Mangaian usually indicate the length of a fish by marking it off on one arm with the fingers of the other hand. The sizes given for supposed life-stages are approximations based on such indications.)

2. **Auopu** - These fish were not plentiful at Oneroa in the period of my research, though they are said to appear, at times, in large shoals. No specimens were seen, but descriptions generally fitted a Bonito or Skipjack, probably the widely distributed Katsuwonus pelamis. Photographs of this fish were consistently identified as au'opu. However, some fishermen talked of two types of au'opu one with longitudinal blue stripes on its silvery flanks, the markings of K. pelamis the other with diagonal stripes on the upper rear half of the body. The second could well be the Little Tuna, Euthynnus affinis. Even informants who did not believe au'opu to be the juvenile a'ai conceded that they were very closely related. Larger au'opu are said to be caught, as a'ai, in depths up to 100 fathoms. Smaller individuals, swimming near the surface, are rod-fished.

3. **Varu** - This fish was described as basically similar to a'ai (1.) but rather elongated, lacking scales, having paler flesh and rather large teeth. The features indicated are those of the Dog toothed Tuna, Gymnosarda nuda also known as the White-meat Tuna or Smooth Tuna. This has been recorded in neighbouring French Polynesia, and could certainly be present in Mangaian waters.

Varu are fished as a'ai but are more likely to be taken in evening or night fishing than during the day. They are less common than other tuna. No capture of a varu was reported to me during my stay.

Dolphin Fish

4. **Ma'ima'i** - Another rare catch, informants' descriptions can only fit Dolphin Fish, Coryphaena spp. A photograph of the widely-distributed Coryphaena hippurus was said to be that of a ma'ima'i. The relationship of the ma'ima'i to the a'ai/tuna group is a tenuous one. They are taken by similar fishing methods, and are found around the though further out to sea than most a'ai. They are known, by a joky colloquialism, as 'a'ai puaka' (= Pig a'ai - A pun is involved. The term 'ma'ima'i' is equated with the call, 'Mai! Mai!', 'Here! Here!', used to summon pigs to food.) Their fine, red flesh is considered to be of the same quality as that of the tunas. However, fishermen were well aware of the many peculiarities which set the ma'ima'i apart from other large, oceanic food-fishes, talking, for instance of the remarkable high, square forehead of the male Coryphaena sp., or of their spectacular death-throe colour displays.

The Swordfishes and Their Associates - a covert grouping of fish of widely-varying size, and with colouring ranging from black to grey-blue and silver, but all with some sharp, bony elongation of the jaws.

5. **Kaku or Pa'ara** - the Wahoo, Acanthocybium solandri. A moderately large fish (largest measured 1.2m.) patrolling the open sea close to the reef, kaku is elongated and fusiform, its narrow head ending in beak-like mandibles. But the elongation of the jaw is not as

pronounced as in other members of this group, and one fisherman loosely compared kaku to varu (3.). Kaku are usually taken by trolling.

6. **'Akura** - Swordfishes, Istiophoridae, are occasionally caught in the course of tuna fishing, being too scarce to be sought in their own right. Traditionally this fine, rare catch had to be offered at the marae of the god Rongo (see Ch. 10). None were caught during my fieldwork period. Informants identified photographs both of the long-billed Swordfish, Xyphias gladius, and of Marlins, Makaira and Istiompax spp., as pictures of 'akura. However, they distinguished:

6.1 'Akura pererau (=Wing 'akura) or **'Akura tamaru** (= Sunshade 'akura). These terms refer to a swordfish with much enlarged, sail-like dorsal fin, almost certainly the Pacific Sailfish, Istiophorus gladius.

As with the tunas, accounts of the swordfish life-stages varied. Among the suggested sequences were:

kaku —————→ 'akura
Wahoo (5.)

miromiro —→ kakukaku —→ kaku —→ 'akura
Halfbeaks (7.) Needlefish (5.)
To app. 40cm.

miromiro —→ kakukaku —→ 'aku —→ 'akura
Halfbeaks (7.) Needlefish (8.) Needlefish (8.)
To app. 60cm. To app. 1.2m.

(A nineteenth century account of the swordfish development sequence, similar to the last given above, is to be found in Gill; 1876b:281.)

7. **Miromiro** - Halfbeaks, Hemirhamphidae. These elongated, grey-blue and silvery fish develop a narrow, elongated lower jaw, the upper jaw remaining short. Specimens of a Hemirhamphus sp. were examined. Informants also spoke of a second type of miromiro more rounded (punupunu) in the body. This description suggests a Hyporhamphus sp., the more convex body being one of the distinguishing characteristics of this genus. Miromiro are generally regarded as 'lagoon fish'. They are often taken with a knife in torch-fishing (T. above), or netted (particularly by the 'akatae' method, L. above). They may also be taken with rod and line.

8. **Kakukaku** - Needlefish, Belonidae. The body-shape of these fish is similar to that of the halfbeaks (7.), but both jaws are elongated into a toothed beak. Specimens of Platybelone argalus were presented as kakukaku. Fishing methods are much the same as for halfbeaks.

The development sequence from miromiro to kakukaku is by no means universally accepted. Some experienced fishermen specifically denied any such link, commenting on differences in the texture of flesh. Linguistically, 'kakukaku' appears to be the diminutive of 'kaku'. Yet, again, the idea that the very elongated, long-jawed kakukaku could become the fuller-bodied, shorter-jawed kaku was not generally acceptable. More widely acceptable was the sequence:

kakukaku → 'aku
60cm. to 1m.+

Descriptions of 'aku suggest a larger needlefish, probably a Tylosurus sp. (From a photograph, Tylosurus crocodilus was identified as an 'aku.)

The Snake Mackerels and Their Associates - a covert grouping of mackerel-like, oceanic, deep-water fishes, principally of the family Gempylidae. All are highly esteemed for their rich, oily flesh, and are fished from canoes on calm, moonless nights, in depths from 30 to 100 fathoms. A traditional feature of this fishing was the use of the V-shaped, mainly wooden hook, the matau toko, now almost entirely superseded by standard metal hooks.

9. **Manga** - Snake Mackerel. The common manga, Promethichthys Prometheus, is elongated and compressed, with smooth, mucous coated skin, and the impressive dentition of a predator. Small individuals are referred to as 'tavere manga', giving the sequence:

tavere manga → manga
To app. 30cm.

Canoe fishermen spoke of at least three other manga types, of which I saw no specimens.

- 9.1 Manga kai-'ara** (= Manga like the aerial buttress-root of the pandanus tree. This suggests something elongated but strong.) Said to grow to about the same size as the common manga but to be more markedly elongated and rather less compressed, this is probably another snake mackerel of deep water (e.g. Gempylus serpens).
- 9.2 Manga tangi-tu'oro** (= Proclamation manga One explanatory suggestion was that, formerly, the taking of such a large, scarce, and prestigious fish would be proclaimed around the island.) This fish, growing up to 2 m. in length, is said to closely resemble Promethichthys prometheus in body shape, but to differ in its skin, which is brownish and dry to the touch, unlike the slime-coated skin of the common manga.
The term 'manga tatu' probably refers to the same fish.
- 9.3 Manga ru'i** (= Black Jack manga. For ru'i see 20.) This creature is described as having fore-parts resembling those of the common manga while the rear resembles the back half of the Black Jack, Caranx lugubris.
10. **Vena** - Castor Oil Fish. Though, again, I saw no specimens, descriptions and photograph identifications clearly reveal the vena to be the Castor Oil Fish, Ruvettus pretiosus. It is considered very closely related to the manga (9.), differing slightly in shape, and in its darker colouring in death. It takes to extremes the oiliness found in the manga and requires special treatment as food (see Ch. 8). The development sequence is given as:

kuravena —————→ vena
 To app.1m. To app.1.5m.

Barracudas

11. **Ono** - Barracudas, Sphyraenidae. Ono, another slender, voracious predator, was loosely compared to manga in bodily form and behaviour. As manga they are fished on calm, moonless nights, though at lesser depths (10 to 30 fathoms), and are said to be particularly plentiful at the time of the flying-fish shoals, from August to November. It was observed that they differ considerably from the fish of the Snake Mackerel group in the texture of their flesh and their predominantly silvery colouring. The life-stage sequence is given as:

onoono —————→ ono
 To app. 80cm. to 2m.+

A 55 cm. specimen of a slender Sea Pike Barracuda, Sphyraena ?forsteri was termed 'onoono'. This lacked the dark bands on the body said to be seen in the larger ono. (From a photograph, the Great Barracuda, Sphyraena barracuda was identified as ono. *S. jello* is another likely contender.) It seems, then, that 'onoono' covers not only the juveniles of the large barracudas but also the smaller Sphyraena spp.

The Sharks - The large, predatory fish of the order Lamniformes all fall within the Mangaian category 'mango'. Sharks are not, normally, sought for food, but may be hooked in the course of fishing for other

large, oceanic species (tuna, wahoo, etc.). They are occasionally eaten (see Ch. 8). In the pre-contact period, sharkskin was used as the membrane on the pa'u drum (now goatskin is used), and was also employed for polishing wooden implements. In addition, sharks' teeth were used in wood-working (Gill, 1876b:307). Some sharks were probably deliberately taken for these purposes. They were also taken when their heavy predation interfered with other fishing activity (Gill, 1876b:137). The pu noose-fishing technique (above, S.), was used solely against sharks. Sharks feature prominently in myth and traditional spirit-beliefs. Discussion of these roles can be found in Ch. 10.

12. Mango - Sharks. Descriptions and sightings suggest that the term 'mango' is used to cover Typical Sharks, family Carcharhinidae; Mackerel Sharks, family Isuridae; Thresher Sharks, family Alopiidae; and Hammerhead Sharks, family Sphyrnidae.

Informants were aware of a number of different mango types, talking, for instance, of mango with white or black fin markings, or unusually long tails (probably White-tip and Black-tip Sharks of the genus Carcharhinus and the Thresher Shark, *Alopias vulpinus*). Two shark types were distinguished as:

12.1 Mango iravaru (for discussion of 'iravaru' see Ch. 8) or

Mango 'amara (Hammer mango. A modern coinage.)

Hammerhead Sharks, one or more species of the family Sphyrnidae, having flattened, rectangular heads.

12.2 Mango papera - Described as a large shark with sharply tapering head, mango papera is noted for its ferocity. Many informants who could offer no description of this shark, nonetheless knew of it as a potential killer. It may, possibly, be the Mako Shark, *Isurus glaucus*.

In general, mango are regarded as potentially dangerous and of little practical value. Their flesh is not relished, and that of mango iravaru has sometimes been held responsible for sickness. However, the fine skin of shark fins is still used in making lures for the fishing of ku, soldierfish (64.).

Suckerfish - These slender, elongated fish of the order Echineiformes attach themselves by a sucking disc to sharks or other large fish, whales, turtles, etc.. One species, at the least, falls within the Mangaian category...

13. Taritari (= Carried about.) Remoras, fish of the family Echineidae. Descriptions could fit both the species common in the warm Pacific, Remora remora and Echineis naucrates. The fish are colloquially known as 'kutu mango', 'shark lice', or 'kutu o te to'ora', 'lice of the whale', their attachment to their hosts being compared to the behaviour of insect ecto-parasites. Usually seen attached to sharks, they are occasionally taken accidentally on small hooks.

The Cetaceans - Whales, Dolphins, and Porpoises - These marine mammals were, generally, included in the category 'mangaika' and considered to be among the mangaika o te moana, 'fish of the ocean'. They are not fished or hunted, and are not eaten. Smaller cetaceans have sometimes been stranded on the reef. It was recognised that the creatures of this covert grouping do differ considerably from the average mangaika. Several informants spoke of the peculiarities of their breathing, of the breathing-holes (puta) in the top of their heads. According to Gill (1876a:98), the mythically important cetacean ta'airangi was considered unlike fish by virtue of the thick layer of fat found within its body.

14. **To 'ora** - Large True Whales, all cetaceans above about 7m. in length. Two large whales sighted close to the reef off Oneroa in early October 1976 were identified as to'ora. Most sightings of these and other cetaceans are said to occur in the period from August to December.

15. **A'angu** (Snorting. The creatures are noted for the noise their venting.) A'angu are said to closely resemble to'ora (14.) though they are considerably smaller. Estimates of length varied from about 3 to 7 metres. They are dark grey above and white below. Though not often seen (I heard of no sightings during my fieldwork period), a'angu are reported to have the unnerving habit of rising close to the canoes of men fishing at night, calling immediate attention to themselves with their noisy breathing. Presumably, they are smaller whales, possibly Pilot Whale, Globiocephala sp., or Pigmy Sperm Whale, Kogia sp.

16. **Tutu** - small cetaceans, about 2 to 3 metres in length reportedly seen in small schools by canoe fishermen. Descriptions suggest dolphins, sp. or spp. of the family Delphinidae, though it is possible that some tutu sightings are of porpoises, sp. or spp. of the family Phocaenidae.
17. **Ta'airangi** - a cetacean chiefly important in mythology. Some claimed it to be intermediate in size between the tutu (16.) and the a'angu (15.). Gill (I76a:3) renders 'ta'airangi' as 'porpoise'. For further discussion of this creature and its mythical role see Ch.1

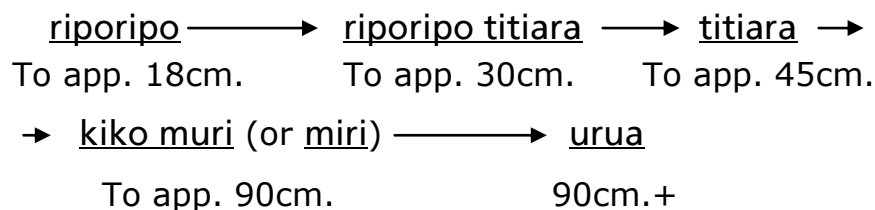
The Rays - a category of fish comprising species of the order Myliobatiformes. The rays are much flattened fish, pectoral fins being incorporated as lateral extensions of the body. A whip-like tail may be armed with spines. Many are bottom-feeders preferring sandy areas. A shortage of flat, sand bottom may account for their rarity at Mangaia.

18. **Tamanu** (? = Bird-like. In differentiating these fish from the Tricolor Fusileer (26.), also known as 'tamanu', informants spoke of 'tamanu pererau', 'tamanu with wings' or of 'the ones like moa kirikiri' i.e. like flying fox.) Rays, probably species of families Dasyatidae and Myliobatidae. Two tamanu types were described. I saw specimens of neither. One is clearly a small stingray. Some informants spoke as if this creature was capable of firing spines from its tail. The second type is probably the Eagle Ray, Aetobatus narinari photographs of which some canoe-fishermen

claimed to recognise. It is said to be much commoner around the islands further to the north. Both rays are scarce and are not regularly fished. There was doubt about their eating qualities.

The Jacks or Trevallies - a covert grouping mainly comprising fish of the genera *Caranx* and *Carangoides*. Ovoid and compressed, predominantly dark grey-blue to silvery, they are predatory schooling fish hunting in the shallower water near the reef. Smaller jacks will swim into the wider reef cuttings.

19. **Titiaara** - *Caranx* spp.; Blue Jack, *Caranx melampygus* and others. These commoner jacks are fished both with spear and line. Baits and technique depend upon size. Their development sequence is given as:

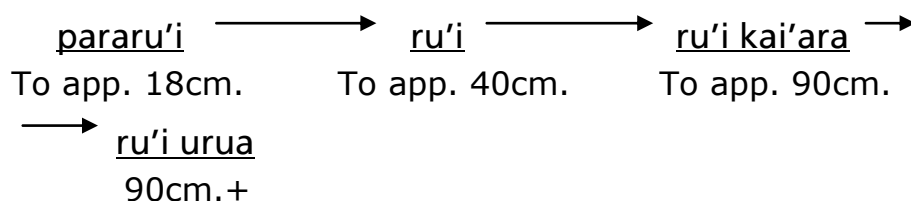


(A life-stage 'titiara kiko muri' is sometimes included between 'titiara' and 'muri'.)

Some riporipo examined were fish of smaller *Carangoides* spp. At the other end of the size scale, few jacks exceed 90 cm. in length. Though some urua may be exceptionally large *Caranx melampygus*, a more likely candidate is the Lowly Trevally, *Caranx ignobilis*, which grows up to 1.5m. and is known from many areas of the tropical Pacific.

Up to titiaara size the fish may be netted in the lagoon at high tide. They are also taken by rod-fishing from the reef, fairly shallow line-fishing from canoes ('i'i, E. above), and underwater spearing. The larger kiko muri or urua are usually speared or caught from canoes. All the life-stages do not, then, fall neatly into any one of the categories 'ocean fish', 'reef fish', or 'lagoon fish'. An informant who prepared two lists for me, one of 'ocean fish', one of 'reef and lagoon fish', placed the titiaara on both.

20. **Ru'i** (= Dark, overcast). Black Jack, Caranx lugubris. In contrasting ru'i with the very similar titiaara (19.) informants emphasised its darker colouring and longer dorsal and anal fins. During the day are found in deeper water than titiaara and may be fished by the pato method (bottom-fishing, B. above), or speared. They are said to congregate in certain areas known as 'ava ru'i', 'ru'i harbours'. The full developmental sequence is:



These terms probably do refer to the growth stages of the single species, C. lugubris.

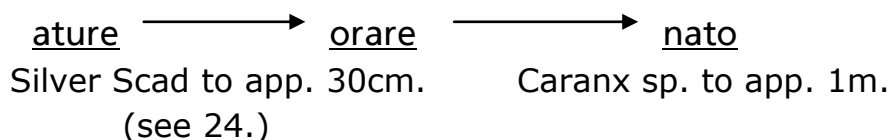
21. **Rai** - Ferdau's Trevally, Carangoides ferdau and others.

Consistently described as 'like a titiaara with spots', there were nonetheless said to be at least two types of rai. Identification of specimens showed one of these to be the Spotted Jack, or Ferdau's Trevally, C. ferdau, which has rusty spots on its silvery flanks. A second type is reported to be marked with larger, black spots. This may well be a Black-spotted Swallowtail, Trachinotus

sp., closely related to the trevallies. (Trachinotus bailloni was consistently identified as a rai from photographs.) Rai are usually caught whilst fishing for the commoner titiaara (19.).

22. **Kuri** (= Dog). The most mysterious member of this group, kuri is a rare fish known only to the most experienced fishermen. It is reputed to resemble titiaara (19.) but to have large, projecting, dog-like teeth in the front of the jaw. It is very occasionally caught, but is most likely to be taken whilst canoe-fishing for the titiaara or other deeper-water jacks, such as the ru'i (20.)
23. **Nato** - a large jack, Caranx sp. Nato are said to have the appearance of a dark, slender titiaara (19.). However, unlike the Blue Jacks, they feed mainly at night and are mainly taken by shallow line-fishing from canoes on dark nights. They are noted for their elusiveness during the day, and are by no means a common catch. No specimens were obtained. (From a photograph, the Horse-eye Jack, Caranx sexfasciatus, was identified as a nato. Like the nato, and unlike most other jacks, Caranx sexfasciatus is a nocturnal feeder. The identification is likely to be correct.)

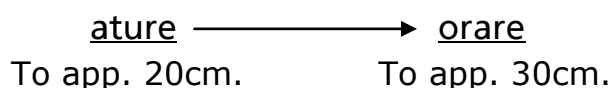
A possible development sequence is:



The Scads and Their Associates - a covert grouping centred upon two of the smaller species of the family Carangidae. Unlike the jacks, which are also members of this family, the scads are elongated and spindle-shaped. Silver is their predominant colour. They form large shoals. There are two peak periods for scad fishing, one from January to February, when young scad are present in very large numbers, the other in June and July, said to be the best time for taking mature fish.

24. **Ature** - Silver Scad, Selar crumenophthalmus. The smaller of the two common scads, ature, chased by predators, will swarm into the wider reef channels, particularly where there are wide artificial cuttings such as the boat-landing of Avarua. As light fails in the evening of a day in the peak periods of ature shoaling the sides of such channels will be lined with men wielding long, bamboo fishing-rods. Rod-fishing (tako'e, D. above), with fish bait or lures of white feather, nylon line, or shark fin, is the principal method of taking ature.

I was given three different accounts of the fish's development. The simplest of the suggested sequences is:



As noted in previous entries, some informants regarded ature as the juvenile of the germon, a'ai to'everi (1.2), while others saw it as the juvenile of the jack, nato (23.).

25. **Koperu** - Mackerel Scad, Decapterus pinnulatus. More elongated than the ature (24.), koperu average about 25cm. in length, but may grow to twice this size. Less likely to venture into the reef cuttings in large numbers, they are usually fished from canoes, using short rods (matira) of ironwood or bamboo and coconut bait.

Some Mंगाians believe the koperu to be the young of the tuna a'ai otava (1.1). A short/long contrast is drawn between the ature and the koperu which parallels the contrast drawn between the tunas a'ai to'everi and a'ai otava, of which the scads are the supposed juveniles.

Besides being food fish in their own right, the two scads are prime bait fish. Koperu is the preferred bait of the tuna fishermen.

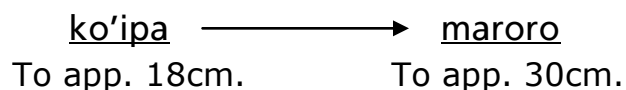
Tricolour Fusileers

26. **Tamanu** - Tricolour Fusileer, Pterocaesio tile. Though this fish, in terms of our zoology, belongs to the snapper family, Lutjanidae, and is coloured in three longitudinal bands of blue, white, and pink, its elongated, fusiform body is, superficially, very similar to that of the scads. Like the scads, it moves in shoals. As does the koperu (25.), the fusileers congregate outside the reef. They are hooked from canoes. Informants compared the tamanu to the scads both in appearance and behaviour, though noting important differences, as in scale texture.

The Flying-fish (Maroro) - fish of the family Exocoetidae, with large pectoral fins which may be used in gliding leaps through the air to

elude predators. At Mangaia, they are fished in the period from September to March, when they are plentiful in the upper water close to the reef. The taking of flying-fish involves an unusual combination of net, canoe, and fishing. On dark nights canoes go out with pressure lamps fastened to a special stand near the bows. (Earlier in this century multi-man canoes were used, carrying paddlers, fishermen, and men acting as torch-holders.) Flying-fish are attracted to the light and are gathered-in in special, small scoop-nets ('uata). The fishing is more effective with a number of canoes containing the fish between themselves and the reef. The technique is referred to as 'rama maroro', 'torching for flying-fish'. Smaller catches are made with hibiscus-wood floats, short lines, and hooks baited with fish or crustaceans. Like the scads, flying-fish are both food fish and important bait fish.

27. **Maroro** - one or more species of family Exocoetidae. (Specimens examined and photographed have not been conclusively identified, but are probably of a Cypselurus sp.) Informants maintained that there was a single type of maroro but distinguished a life-stage, ko'ipa.



Ko'ipa are said to be most plentiful in the early morning. No specimens of these were seen. However, several informants spoke of the shortness of their 'wings' in comparison to the 'wing'/body proportions of the maroro. This suggests the possibility that some, at least, are not true juveniles but members

of one of the smaller species of flying-fish with less developed pectoral fins (eg. a Parexocoetus sp. or Evolantia sp.)

The Rock Cods, Sea Basses, or Groupers, and Their Associates - a covert grouping mainly comprising members of the family Serranidae. The serranids are largely solitary predators of the reef slope. Bottom-dwellers, they emerge from their coral crevices to seize prey, sometimes not much smaller than themselves, in their massive, well-toothed jaws. Only the smaller members of this group are to be found within the lagoon. Most species are taken by bottom-fishing from canoes (pato, B. above), or speared by divers.

28. **Karau/Karakarau** - Sea Basses covered with a regular pattern of pale brown spots on a light background; Orange Sea Bass, Epinelphus hexagonatus ?= E. merra and other similar species. There is an extensive developmental sequence:

<u>karakarau</u>	→	<u>karau</u>	→	<u>karau va'ava'a</u>	→
To app. 15cm.		To app. 30cm.		To app. 40cm.	
→ <u>va'ava'a</u>	→	<u>tarao</u>	→	<u>tonu</u> or <u>tonu tarao</u>	
To app. 55cm.		Around 1m.		2 or even 3 m.	

This supposed life-stage sequence clearly incorporates several species which grow to different sizes. Below about 40cm. E.hexagonatus/merra predominates. One or more larger larger Epinelphus species (?E. tauvina) account for va'ava'a and tarao. ('Va'ava'a' is formed from 'va'a' = 'mouth' and relates to the large, extensible jaws of the Sea Bass.) As far as can be judged from descriptions, the rare and monstrous tonu is probably the

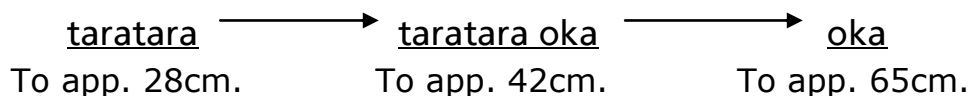
Giant Jewfish, Promicrops lanceolatus, largest of the Polynesian groupers. Informants spoke of two distinct karau types, the common karau and....

28.1 Karau tapairu (= Beautiful woman karau. No explanation of the term was given.) This fish was said to closely resemble the common karau but to be darker in colour, its almost-black spots being somewhat larger in size than those of the more plentiful species. (From photographs, the Leopard Sea Bass, Epineiphus socialis and the Spotted Sea Bass, E. melanostygma were both tentatively identified as karau tapairu.)

29. Ro'i – Blue-spotted Grouper, Cephalopholis argus. A fish of the outer reef channels and reef slope, ro'i grows to about 45cm. in length. Blue-spotted on a dark brown background, it is considered very similar to the spotted karau (28.). Some informants spoke of a giant form of ro'i the tonu ro'i (compare tonu tarao, 28.), growing to a metre or more in length. C. argus is normally less than half this size. Tonu ro'i may be one of the larger, blue-spotted Coral Trout, a Plectropoma sp.

30. Atea - Scarlet Sea Bass, Epineiphus fasciatus. This mottled-red bottom-feeder is said to be found in depths up to 60 fathoms but does occur in much shallower water closer to the reef ridge. It is reported that atea sometimes form large groups, living and feeding within a restricted area. This behaviour is reflected in a Mangaian saying, 'The atea feed around one coral outcrop'. (The force of this proverbial expression is explained in Appendix 4.)

31. **Taratara** – Lunar-tailed Rock Cod, Variola louti. This brilliant red, orange and yellow rock cod is moderately common along the inner part of the reef slope. Three growth stages are recognised:



The suggestion of one informant that atea (30.) was the juvenile of taratara was generally rejected, though the two are considered closely related.

32. **Rari**, 33. **Papa rari** and 34. **Papa** - These less common sea basses are known to me only by description. Papa is said to be an orangey-red fish, similar to 30. and 31., growing to about 60cm. Two types of rari were reported, one reddish-brown, growing in excess of 30cm., the other mottled-red with white bands on the tail and somewhat smaller. The latter type of rari is probably the same as 33., papa rari and may well be the Flag-tailed Sea Bass, Cephalopholis urodelus. (This species, identified as rari from a photograph, has characteristic white bands on the tail.)
35. **'Apuku** - another scarcer member of this group, of which no specimens were seen. 'Apuku are said to have all the usual sea bass/grouper features, and to closely resemble karau (29.) in structure. Growing to about 60cm. in length, they are marbled in black or dark brown on a light background. (From photographs, both the Marbled Sea Bass, Epinephelus microdon, and the Snake

Sea Bass, Epinephelus morrhua, were tentatively identified as 'apuku'.

The Handfishes

36. **Patuki** - Handfishes, spp. of the family Cirrhitidae, moderately small, predatory fishes of the reef channels and reef slope. The common patuki, Cirrhitops pinnulatus is covered with blackish-brown spots and dashes, and is not dissimilar in appearance to the small, spotted rock cods, karakarau (28.). This similarity between rock cods and handfishes was remarked upon by Manganian informants. (Their relationship is more explicitly recognised in the Rarotongan dialect of Cook Islands Maori, in which 'patuki paru', 'soft patuki' is equivalent to the Manganian 'karakarau'.) Patuki and karakarau are the two commonest fish of the outer surge channels, where they are rod-fished. However, unlike the small rock cods, handfish are seldom found living within the lagoon. Besides the spotted handfish species, there are also....

36.1 Patuki iva (?= Dragonfly patuki. It was suggested that the bright colours of these handfishes echo those of dragonflies.) Two types of patuki iva are known. I examined specimens of one of these, a dark brown Paracirrhites sp. marked with a small, round, white or pink patch on each flank (probably identical with Harry's Paracirrhites sp. 1, recorded at Raroia. Harry, 1953.)

Photographs of the Multi-coloured Handfish, Paracirrhites hemistictus, were consistently identified as the second type of patuki iva also, occasionally, referred to as 'patuki renga' (=

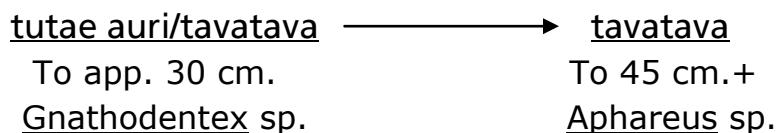
Yellow patuki) Both fish are usually taken by canoe-based bottom-fishing.

None of the handfishes are known to grow much in excess of 30cm., few species approaching that size. Yet, some informants spoke of rare, gigantic patuki, known as 'tonu patuki' (again indicating the relationship thought to hold between the handfishes and the rock cods; compare 28. and 29.). These are said to achieve lengths of up to two metres. Similar reports of giant handfishes have been recorded from fishermen in French Polynesia (Bagnis, Mazellier, Bennett, and Christian, 1972:113).

37. **Marau'ange** - Striped Handfish, Paracirrhites arcatus. This dark reddish-brown handfish, marked with pink around the eye and on the gill covers, is considered closely related to the patuki (36.) and shares their habitat on the reef slope. The term 'marau'ange' is not widely known, and was only used with certainty by a few experienced fishermen, other informants identifying P. arcatus as 'some kind of patuki'.

The Snappers and Sea Perch - a covert grouping of fish of the family Lutjanidae. They are largely bottom-feeders, moving in small groups. Some smaller individuals do penetrate the pools behind the reef ridge, but they are usually found along the reef slope where, like the groupers, they are line-fished by the pato method or speared. Different snapper types are expected from different depths on the slope.

38. **Tavatava** or **Tutae auri** (= Rust. This is a reference to the golden-brown lines on the fish's body and is obviously a fairly modern introduction to the terminology.) The term 'tavatava' is applied to at least two species. The first of these, the Golden-lined Sea Perch, Gnathodentex aureolineatus, is also known as 'tutae auri'. They are normally to be found on the shallower part of the reef slope and in deeper reef channels. Specimens of the Small-toothed Jobfish, Aphareus furcatus, were also identified as tavatava. These fish are mid- to deep-water predators, fished from canoes standing 50m. or more from the reef ridge. There was not full agreement as to the nature of the relationship between the two forms of tavatava. Some informants maintained that there was a single tavatava of which the tutae auri was the juvenile, giving the development sequence:



However, this suggestion was rejected by a number of the most experienced fishermen, who preferred to see the tavatava as two distinct but related fish. This argument was backed up by pointing to discrepancies in the ratio of scale size to body size.

39. **Paru** - This fish, known to me only through description, was said to closely resemble the jobfish tavatava (38.) but to be considerably larger, in excess of 60cm. in length, and probably reddish-brown in colour. It is hooked in deep water away from

the reef, and is now a rare catch. A few informants saw paru as the final growth stage of the tavatava.

40. **Morenga** (= Yellowish). The term 'morenga' was sometimes applied to specimens of the Black Spot Snapper, Lutjanus monostigma, however, it was generally agreed that there was a second, smaller, type of morenga its yellow body marked with longitudinal blue stripes. (From photographs, the Blue-lined Sea Perch, Lutjanus kasmira, was repeatedly, and confidently, identified as this second type.) For a small section of my informants, the morenga and the remaining two members of this snapper and sea perch group formed a single development sequence.

Thus:

<u>morenga</u>	→	<u>tangao</u>	→	<u>angamea</u>
To app. 30cm.		To app. 73cm.		To 90cm.

According to this view of the development, colour and markings change with size, blue stripes being lost, a black spot appearing but eventually vanishing as the colour moves from yellow to red. The supposed life-stage connection between L. kasmira and L. monostigma is made more credible by the fact that some Blue-lined Sea Perch do have a black mark in the same position as that found on the Black Spot Snapper. Different informants accepted different sections of the given development sequence, i.e.:

morenga → tangao

or

tangao —————→ angamea

Still others saw morenga, tangao and angamea as distinct, though essentially similar, types.

41. **Tangao** - Black Spot Snapper, Lutjanus monostigma and, possibly, other yellow or reddish Lutjanus species. It was clear from the varied identifications of L. monostigma that one man's morenga (40.) was another man's tangao. However, there were reported to be other, non-spotted, tangao more orange in colour, and more clearly distinct from the morenga.
42. **Angamea** - A deep-red fish of the outer reef slope, angamea is said to be the largest member of this group. (It is probably the Red Snapper, Lutjanus bohar, which was picked as angamea from photographs.) Those Mंगाians rejecting the developmental link with tangao (see 40., 41.) gave the life-stage sequence:

pepe angamea —————→ angamea
To app. 70cm. To app. 90cm.

The Tropical Porgies - Apparently, a single species of porgy, or sea bream, is present on the Mंगाian reef slope. In terms of scientific classification, it is a member of the family Lutjanidae. Mंगाian informants could not confidently place it with any particular grouping

of fish. They particularly noted the peculiarity of its dentition (it has both canine-like and molar-like teeth) and its distinctive, massive, angular head. I have heard it compared, in different respects, both to snappers and to parrotfish.

43. **Mu** - Tropical Porgy or Large-eyed Sea Bream, Monotaxis grandoculis. This fish is chiefly to be found near the coral bottom along the inner part of the reef slope, where it may be hooked or speared.

The Parrotfishes - a covert grouping of fish of the family Scaridae. The brightly-coloured parrotfish, their teeth completely or partially fused into beaks, feed on corals, molluscs, and weeds on the reef slope. Some will take small hooks cast from reef or canoe, but they are a favourite prey of underwater spear-fishermen. At night, in underwater torch fishing, the fish may be taken while they sleep. As mentioned above (fishing method G.), a more traditional technique involves the use of long spears by fishermen standing on the reef ridge.

44. **U'u** and 45. **Pakati** (= Cutter or clipper - apparently a reference to the fishes' beaks.) Parrotfish, species of the family Scaridae. I could discover no single, clear principle by which some parrotfish were identified as u'u, others as pakati. Informants' identifications of parrotfish photographs revealed considerable variations in the use of terms. From the general tendency of the identifications, and the tentative suggestions of informants, the distinction seems to follow these lines:

Parrotfish of large size, with massive squarish head

= U'u . (These would generally be adult males.)

Parrotfish predominantly red in colouring = U'u.

(These would usually be young males or females.)

Less massive parrotfish of other colours = Pakati.

It was once suggested to me that

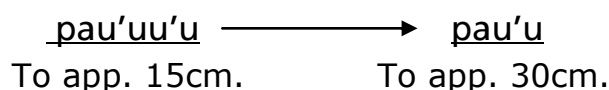
pakati —————→ u'u

was a life-stage sequence, but there was little local support for this view. The scientific classification of parrotfish is complicated enormously by their sexual dimorphism, and remains a vexed area of study. In view of this, and of the great specific variability, the identifications I offer are based on little more than comparability to published photographs (Bagnis et al., 1972; Burgess and Axelrod, 1971-5). This limitation borne in mind, those specimens identified as pakati were: Half-toothed Parrotfish, Calotomus spinidens; Burnt Parrotfish, Scarus sordidus (male); Tattooed Parrotfish, Scarus jonesi; Scarus/?forsteri (male)/?oviceps (male). Large males of Scarus jonesi were identified by some informants as u'u. I was assured that there are many other different kinds of both pakati and u'u. Two particular u'u types are singled out in the terminology.

44.1 U'u o kura (= Red u'u), Scarus ?lepidus. The upper parts of this fish range from brown to a dull, metallic blue, but the fins and belly are a brilliant pink. Individuals of about 30cm. in length are one of the commonest parrot-fish catches.

44.2 U'u mamaringa - This large, scarcer parrotfish is said to be bluish in colour and to have a particularly prominent forehead. (A mature Big Blue Parrotfish, Scarus gibbus, was identified from a photograph as u'u mamaringa. The term 'rae-puku' (= Bumpy forehead u'u) probably refers to the same fish.

- 46. Pau'u** - Though not very common in the Oneroa area, this is the only parrotfish to appear regularly within the reef ridge. It feeds and conceals itself within patches of weed on the inner edge of the reef. There, especially at night, it is sought by feeling with the feet in the weed mat, a technique known as 'taka'i pau'u'. Once located, the fish is seized or knifed. (Photographs of the Petroleum Parrotfish, Leptoscarus vaigensis, were said to represent pau'u. This species is known to favour shallow, weedy areas.) Smaller individuals are known as 'pau'uu'u' giving the development sequence:



The Wrasses – a covert grouping of fish of the family Labridae. The wrasses are brightly coloured, mainly carnivorous fish feeding on corals and larger invertebrates. Unlike the parrotfish, to which they are closely related, the commoner wrasses are frequently to be seen within the lagoon, and are regarded as 'fish of the lagoon'. Though I have not yet discussed all the 'fish of the reef', the wrasses are included at this point in the chapter in order to reflect the Manganian recognition of their relationship to the preceding parrotfish group.

47. **Pa'oro** - Larger wrasses of the genus *Thalassoma*. At least three pa'oro types are recognised and distinguished in the terminology.

47.1 **Pa'oro mutukura** (= Reddish pa'oro) also known as **Pa'oro ngutu-marō** (= Hard-lipped pa'oro. It is difficult to remove a hook from this fish's mouth.) Fire Wrasse, *Thalassoma fuscum*.

47.2 **Pa'oro 'ina** (= the pa'oro of 'Ina. This is a reference to myth. See Ch. 10.) Puzzle Wrasse, *Thalassoma umbrostigma*.

47.3 **Pa'oro matakiva** also known as **Pa'oro auvika** = auika (= Blue pa'oro) or **Pa'oro rearea** (= Blue-green pa'oro) Purple Wrasse, *Thalassoma purpureum*.

The term 'pa'oro rivariva' was also recorded, though it was not applied to any specimens. According to some informants it refers to larger pa'oro 'ina, around 30cm.

The three pa'oro are extremely similar in shape, habitat, and behaviour, being moderately-elongated, fast-moving fish, often seen in shallow water. They contrast in colouring, though again, the hatched pattern formed on their sides is much the same in each species. In Manganian myth it is connected with the origins of a particular tattooing pattern (see Ch.10).

For all types there is a single growth sequence:

<u>ngorengore</u>	—————→	<u>pa'oro</u>
To app. 10cm.		To 30cm.

Pa'oro are a very common catch, and among the best known of fish, being taken by a great variety of techniques - day-time lagoon nettings, rod-fishing from the reef or in the lagoon, spearing, or capture by hand in rock-hole retreats.

48. **Karore** - Thalassoma lutescens and other small wrasses. Karore were frequently described as like little pa'oro. The only specimens identified as karore were those of T. lutescens, all under 18 cm. in length. There are reported to be two other types, one yellow, one blue, probably small Thalassoma or Halichoeres spp. The karore will take small hooks baited with hermit crab, both within the lagoon and on the reef slope. (For a description of the traditional techniques of karore fishing, see Buck, 1944:235-6.)
49. **Pa'o** - Sharp-nosed Wrasse, Cheilio inermis. This wrasse is instantly recognisable from the pronounced elongation of its body. Pa'o frequently lie hidden in sand or weed on the lagoon floor. They are taken by net or hook within the lagoon, but may also be sought out by feeling with the foot (taka'i) and knifed.
50. **Pa'opa'o** - Rainbow Wrasse, Halichoeres trimaculatus and other small wrasses. The term 'pa'opa'o' being the reduplicated form of 'pa'o' one might expect a close link with the Sharp-nosed Wrasses (49.). However, pa'opa'o were more usually compared to the pa'oro and karore (47. and 48.) whose habits, habitats, and bright colours they share. Once more, though the few specimens seen were of a single species, there are said to be many pa'opa'o

types, varying in colour and patterning. Presumably, they are mostly small Halichoeres species.

51. **Arera** - Spotted Chisel-tooth Wrasse, Anampses caeruleopunctatus and.....
52. **Re'u** - Blue Chisel-tooth Wrasse, Anampses diadematus. In this case, though the terminology does not indicate it, these two wrasses are seen as very closely related indeed, and are often spoken of together. Both can reliably be expected to be in the lagoon during the period of the high tide, and they are among the last fish to leave as the tide falls. This makes them vulnerable to the netting of exit channels ('akatae, technique L. above) as well as to other methods of net and rod fishing. Mangaian fishermen regard them as the idiots of the fish world, so stupid that they can be driven into the shallows simply by repeatedly throwing stones to their seaward side.
53. **Pa'ue'ue** - Trilobed Maori Wrasse, Cheilinus trilobatus, ?and others. Pa'ue'ue do not venture into the lagoon further than some of the deeper pools just within the reef. Specimens of C. trilobatus were hooked in large surge channels. This species is predominantly grey-brown or green with fine, red markings. But, according to some canoe fishermen, the 'true pa'ue'ue' is reddish in colour, and though still 'of the family of the pa'oro' is hooked in fifty to sixty fathoms outside the reef.
54. **Katia-rangi** (?= Sky biter - an allusion to the fish's prominent mouth.) Thick Lips, Hemigymnus fasciatus. Very distinctively

marked with vertical black stripes, katia-rangi is another wrasse found almost exclusively outside the reef. Even there, it is a moderately uncommon catch, either for line- or spear-fishermen.

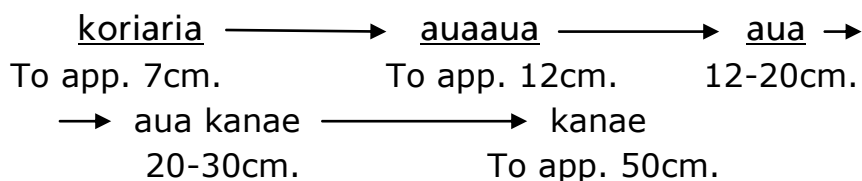
55. **Aupa** - Another scarce fish, known to me only by description, aupa is said to be green to brown in colour, with a clear division between paler foreparts and darker rear. It feeds along the reef slope. (A photograph of the Comb Wrasse, Coris aygula, was tentatively identified as aupa.)

56. **Takataka** - Bird Wrasse, Gomphosus tricolor ?= G. varius. Informants were aware of the essential similarity of this fish to the other wrasses, but also continually pointed to its one outstanding difference, an elongated, beak-like mouth. Some spoke of two takataka types, differing in colour. This distinction is probably founded upon the observation of the two sexes of G. tricolor which are dimorphic with respect to color. Takataka live and feed on the shallower parts of the reef slope, where they can be taken with a small hook, either from a canoe, or from the reef ridge.

The Grey Mulletts - a covert grouping composed of fishes of the family Mugilidae. The predominantly silvery, large-scaled, mullets feed on algae and protozoa in the shallower waters of the reef slope. Despite the minute size of their usual foods, they will take small hooks baited with young coconut, offered by rod-fishermen from the reef ridge. Small shoals of the smaller mullet frequently enter the lagoon, larger

fish also being present at high tides. There they are netted (e.g. by rautata, 'akatae, or tamoe 'upenga techniques K., L. and M. above).

57. **Kanae** - Mullet, several species of the family Mugilidae. Kanae is the ultimate stage in the developmental sequence:



Two kanae and corresponding aua, types are recognised.

57.1 Kanae va'a roa (= Long mouth kanae) A single spear-torn specimen I tentatively identified as the Warty-nosed Mullet, Crenimugil crenilabris. Specimens of aua va'a roa were, however, of a completely different species, a slender mullet with two rows of projecting teeth in each jaw, Neomyxus chaptalli.

57.2 Kanae va'a poto (= Short mouth kanae). No specimens were obtained. However, this kanae is described as having a somewhat blunt snout, the head being less elongated than in other members of the group. This suggests a Mugil sp.

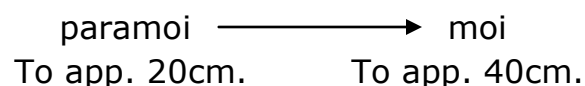
58. **Ka'a** - All informants agreed upon the similarity of ka'a and kanae (57.). Three distinguishing features of were indicated - very large scale size, long pectoral fins, and a yellow tail. These are all features of the Diamond-scaled Mullet, Liza vaigensis. (This species was also identified as ka'a from photographs.)

The Threadfins - a category comprising at least one species of the family Polynemidae. Threadfins were not firmly linked to any major fish grouping by my informants.

59. **Moi** - Threadfin, *Polydactylus sexfilis*. The pectoral fin is divided into six filaments used in exploring the bottom for invertebrate food. They are also predators on small fish and, like the mullets, are mainly to be found around the upper parts of the reef slope. They penetrate the lagoon at high tides and are often found in 'harbour' cuttings. **Moi** will take the fish baits and feather lures of rod-fishermen and are also netted. Since they are highly active at night, they are often taken in sleeping-nets set across the wider reef channels and cuttings.

The silvery-brown **moi** are reputed to have an extraordinary sensitivity to the fate of others of their own kind. It is said that if a scale from a **moi** drops into the water as the fish is removed from a hook all others in the area will be alerted to the danger and move away.

Two life—stages are distinguished:



The Flagtails - a small covert grouping of fish of the family Kuhliidae. Shoals of small, silvery flagtails, compressed, perch-like fishes, may be seen rising into shallow water near the reef ridge, some moving into reef channels, and, on high tides, into the lagoon.

60. **A'ore** - Barred Flagtail, Kuhlia taeniura. A'ore is immediately distinguishable from other flagtails by the black stripes crossing the caudal fin. Some fishermen proposed the development sequence:

a'ore'ore $\longrightarrow$ a'ore
 To app. 10cm. To app 20cm.

61. **Aputu** (=Darts in the water). Silver Flagtail, Kuhlia ?marginata/?sandwichiensis, an all silver flagtail with no markings other than small, faint, dusky patches on the flanks. The given development sequence is:

aputuputu $\longrightarrow$ aputu
 To app. 10cm. To app. 20cm.

Both a'ore and aputu are rod-fished from the reef with coconut bait. The former are more likely to venture into the lagoon, where they are rod-fished or netted. Both are considered to be sensitive to the death of another of their kind. When the fish are taken from the hook they should not be killed immediately. The death will communicate itself to, and frighten off, others in the neighbourhood.

The Rudderfish - a category of fish of the family Kyphosidae. Shoals of the oval, compressed, silvery to grey-brown rudderfish feed on the algae of the reef slope. Groups of smaller individuals regularly enter the lagoon at the high tide. At night fully-grown rudder fish will also come inside the reef.

62. **Nanue** - Rudderfish, Kyphosus cineaescens ?and K. vaigensis.

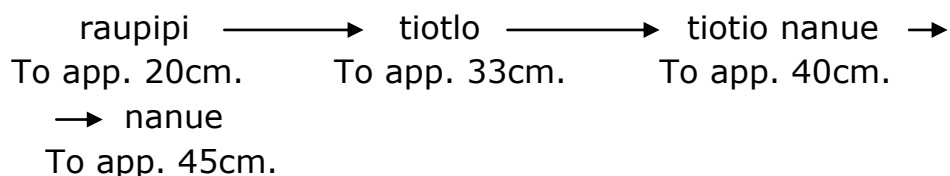
Line-fished from canoe ('i nanue, E. above and Buck, 1944: 237), rod-fished from the reef, taken with nets within the lagoon, and speared by divers, nanue are a very common catch. Their taste for fish and crustacean baits belies their essentially herbivorous diet. Some informants distinguished two nanue types.

62.1 **Nanue tapa'uru** (= Nanue like the tapa'uru, i.e. the Banded Sergeant-major, Abudefduf sp.) The small lagoon fish tapa'uru (see 83.) has a short body with a rounded profile. Nanue tapa'uru is shorter and broader in the body than....

62.2 **Nanue morava** (= Nanue like the morava, i.e. Spotted Rabbitfish, Siganus sp.) The rabbitfish morava (76.) has an elongated oval body profile.

Examination of specimens suggests that this division into two types may correspond to a distinction between K. cineaescens and a second Kyphosus sp. I was also told of the ariki nanue (= Chiefly nanue) seen leading shoals and recognisable by their all-yellow colouring. Several Kyphosus species are known to produce yellow individuals.

For all nanue there is the development sequence:



The Trumpetfish and Cornetfish - a single Manganian category encompassing species of the two families Aulostomidae and Fistulariidae. These unusually-shaped, extremely elongated fish feed along the reef slope sucking in organisms through their tubular mouths. They are regarded as untypical mangaika.

63. **Anu** (= Like coconut frond). The shape of the body is compared to the thin mid-rib of the coconut frond.) Trumpetfish and Cornetfish, i.e. Flute-mouths. The term 'anu' was applied to specimens of Aulostoma chinensis ?= A. valentini, the Trumpetfish. Informants maintained that there was also a more elongated type of anu growing to lengths in excess of 80cm. They consistently selected a photograph of the Cornetfish, Fistularia petimba, as representing this type.

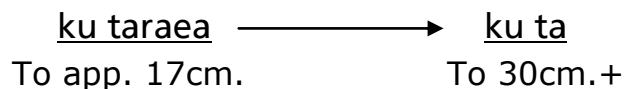
Anu may be hooked in reef cuttings or netted within the lagoon at high tide. They are sometimes knifed in torch-fishing. Unlike, other larger fish, they are not much sought for food, their slender bodies providing little flesh, and that considered to be of poor quality.

The Soldierfish and Squirrelfish and Their Associates - a covert grouping mainly comprising species of the family Holocentridae. The fish of this group are mangaika o te 'akau, 'fish of the reef' par excellence, spending the day in holes and crevices on the reef slope, emerging at night to feed on molluscs, crustaceans, and smaller fish.

64. **Ku** - Soldierfish and Squirrelfish, species of the family Holocentridae. Many species of these small, red or red and silver reef-dwellers are present. Fishermen acknowledged that there were several different ku which vary in their colour and markings and, to some extent, in their fishing characteristics (e.g. some of the more silvery soldierfish, ?Kutaflammeo spp., will not take the lures used for other types). However, only three major types are regularly distinguished.

64.1 Ku taraea (= Spiny ku). Holocentrus spp. ?and Kutaflammeo species - Holocentrus(Adioryx) microstomus and others. These ku have a pre-opercular spine on the lower part of the head which can cause a painful wound if they are incautiously handled.

64.2 Ku ta (= Stabbing ku). Armoured Soldierfish, Holocentrus spinifer. The largest of the ku, growing to more than 30cm. in length, ku ta also have the most developed pre-opercular spines. Some informants believed ku ta to be the adult form of ku taraea giving the life-stage sequence:



64.3 Ku mata nui (= Big-eye ku). Myripristis spp. These soldierfish lack pre-opercular spines. Several species do have notably large eyes.

All ku follow the development sequence:

kuku $\longrightarrow$ ku
To app. 13cm.

Soldierfish and squirrelfish can be speared in their hiding places during the day but are mainly taken at night, especially near the full of the moon. The smaller kuku may be taken with rod and line from the reef ridge, or with hand, knife, or spear in the shallow pools on the ridge itself. The larger ku are found in deeper water over the reef slope and are fished from canoes. Though fish baits are often used, ku are noted for taking black or white lures - various feathers (see Ch. 6), sharkfin, pig bristles, goat hair, the ventral fins of other soldierfish, etc. The lures are trolled.

65. **Po nui** (?= Plentiful at night. This fish is largely nocturnal.) Red Bullseye, Priacanthus ?cruentatus, a red and silvery reef-dweller. Though the fish of the family Priacanthidae, to which the po nui belong, are not closely related to the soldierfish and squirrelfish, Holocentridae (ku, 64.), they do superficially resemble them in a number of respects. In recognition of this resemblance, some Mंगाians spoke of ku po nui, regarding the bullseye as a type of ku. However, many fishermen rejected this notion, pointing out that po nui differed radically from 'true ku' in scale size and texture.

Po nui are mainly fished by night trolling, as for ku.

The Sweepers - a category of fish of the family Pempheridae. I have heard Mंगाians loosely compare these fish to the bullseyes, po nui (65.), in their habitat and nocturnal habits. But their silvery or coppery colouring and deep body make them clearly distinguishable from all Holocentridae. They are not closely linked with the preceding group in Mंगाian thinking.

66. Tapatai – Sweeper, Pempheris oualensis. Tapatai are yet other small reef-dwellers fished much as the ku (64.), speared during the day, caught on troll lines at night. In the larger reef cuttings they are sometimes taken in sleeping nets. P. oualensis seldom exceeds 18cm. There are reports of a larger, red tapatai which is occasionally caught in deeper water away from the reef.

The Butterflyfish, Angelfish, and Moorish Idols - a small covert grouping of fish of the families Chaetodontidae and Zaclidae. They are small, deep-bodied, highly compressed and highly coloured fish of the reef. They are particularly common in the puna, the deep pools just within the reef ridge. Some species will venture further into the lagoon, staying within the narrow channels which dissect the reef flat that forms the lagoon floor.

67. Ti'iti'i - Butterflyfish, Moorish Idols, and some Angelfish, species of Chaetodontidae and Zaclidae. The term 'ti'iti'i' was applied, unqualified, to specimens of:
Thread-fin Butterflyfish, Chaetodon auriga; Quadrispotted Butterflyfish, Chaetodon quadrimaculatus; One-spotted Butterflyfish, C. unimaculatus; Golden Butterflyfish, C. aureus;

and Bannerfish, Heniochus monoceros. (Photographs of several other Chaetodon spp. were all identified as ti'iti'i.)

Informants recognised that there were many ti'iti'i types not differentiated in their terminology. The joky colloquialism 'ti'iti'i tuatae puaka' (= Pig's dung ti'iti'i - a reference to the foul smell of the fish's faeces) was applied to a juvenile Emperor Angelfish, Pomacanthodes imperator. One type was consistently singled out as:

67.1 Ti'iti'i 'apai reva (= Banner-carrying ti'iti'i). White Moorish Idol, Zanclus canescens (possibly also the superficially similar Pennant Fish, Heniochus acurninatus, which was selected as ti'iti'i 'apai reva from photographs.)

These fish are characterised by a long, pennant-like dorsal fin.

Western ichthyologists have now moved away from the Manganian view that Moorish Idols are closely related to the Butterflyfish, preferring to group them with the surgeonfish, Acanthuridae. However, their many similarities were reflected in older scientific taxonomies.

Ti'iti'i are not greatly esteemed as food. Yet they are sometimes speared, or taken in small nets. In puna poisonings (techniques N., O., P. above) they may be gathered in considerable numbers.

- 68. Kumukumu** (According to some this term is onomatopoeic. The fish makes short grunting noises.) Emperor Angelfish (adult), Pomacanthodes imperator. The adult differs markedly in colour and patterning from the juvenile which was identified as a ti'iti'i (67.). Kumukumu are considered very similar to ti'iti'i but are

known to grow much larger, in excess of 30cm. in length. Their larger size helps to make kumukumu rather more desirable for eating. They are usually speared.

The Surgeonfish or Tangs - a covert grouping of fish of the family Acanthuridae - genera Acanthurus, Ctenochaetus and Zebrasoma. These are mainly small to moderate, oval, compressed, reef fish. They are herbivorous, scraping algae off the coral rock with their fine teeth.

69. **'Api or Maito** - most locally-present species of the genera Acanthurus, Ctenochaetus and Zebrasoma. Some eight types are distinguished in the terminology.

69.1 **'Api tako** (= Black 'api). Dark brown-black Ctenochaetus and Acanthurus spp.; Ctenochaetus striatus and others. These dark surgeonfish are the commonest of 'api. The different species show faint blue or brown spots, or longitudinal stripes.

69.2 **'Api va'a-vera** (= Pouting-mouth 'api). A dark-brown surgeonfish with a prominent mouth, Acanthurus or Ctenochaetus sp. Some Mंगाians do not distinguish these from 'api tako. There were inconsistencies in informants' identifications.

69.3 **'Api taringa auika** (= Blue ear/ fin 'api). Ctenochaetus ?striatus. These dark surgeonfish are marked with a fine blue stripe which is most clearly seen in the pectoral fin. Again, for most women, boys, and many men less versed in fishing, the

specimens identified by some as 'api taringa auika were simply 'api tako.

69.4 'Api tuitui (= Candlenut 'api). A red patch at the rear of the fish is said to smell of candlenut, the fruit of Aleurites moluccana. Red-spotted Surgeonfish, Acanthurus achilles. The red area at the base of the tail is considered poisonous by some. It is scraped away before the fish is cooked and eaten.

69.5 'Api renga (= Yellow 'api). Olive Surgeonfish, Acanthurus olivaceus. Juveniles of A. olivaceus are bright yellow, becoming dark grey-olive as adults. The dark adults were still recognised as 'api renga though 'renga no longer accurately described their body colour (they do keep a distinctive orange patch behind the eye). Some informants also identified the Yellow-spotted Surgeonfish, Acanthurus aliala as 'api renga (though clearly recognising it as distinct from A. olivaceus), justifying the identification by pointing to the yellow borders at the base of its dorsal and anal fins.

69.6 'Api 'uku tea (= White-tailed 'api). Acanthurus ?mata and, probably, other Acanthurus spp. having a white caudal fin or a white base to the tail.

69.7 'Api maka'aka'a (= Striped 'api). I saw no specimens of this fish, but descriptions and photograph identifications indicate that it is the Zebra Surgeonfish, Acanthurus lineatus, which is striped in yellow and blue.

69.8 'Api pua'au (= Flower of Lemon Hibiscus 'api. The pale yellow vertical bands on the fish's body are compared in colour to the blossom of Hibiscus tilaceus.) Spotted Surgeonfish, Acanthurus guttatus.

'Api tako, 'api va'a-vere, and 'api taringa auika are common both on the reef slope and in the deep pools within the reef, though the last 'api are said to especially favour the zone where the reef slope drops away steeply to the ocean floor. Shoals of juveniles are found well within the lagoon. 'Api tuitui, 'api renga, 'api 'uku tea, and 'api maka'aka'a are seldom to be seen inside the reef ridge. On the other hand, 'api pua'au is a regular visitor to the lagoon at high tide and so is more prone to netting. Spear, poison, rod, and line all play a part in the taking of 'api. One special bait, urua, prepared from the ink of cephalopods is particularly associated with their fishing.

Also identified as an 'api was the Brown Sailfin Tang, Zebrasoma scopas, speared outside the reef. Apparently not covered by any more specific fixed term, it was spoken of as 'tera 'api va'a roroa', 'that 'api with the long mouth'.

All 'api have the development sequence:

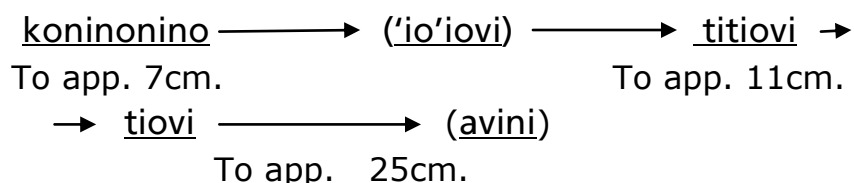
pio → papara'a → para'a → 'api
To app. 7cm. To app. 12cm. To app. 16cm. To app. 30cm.

The tiny pio are prime examples of ika tauira, the juvenile fish which appear in vast shoals in the period February-March. (Ika = fish. Tauira = a novice to the priesthood, archaic.) Such shoals

are also colloquially referred to as 'manu'iri 'ou', 'the young visitors'. Fine, small nets are used to scoop up ika tauira from the lagoon. The pio are pale, almost transparent, but resemble the adults in body form.

70. **Parangi** - This fish is said to share the bodily form of the 'api' (69.) but to grow to twice their normal size. It is a rare catch of canoe fishermen. The descriptions suggest the widely-distributed Ring-tailed Surgeonfish, Acanthunis fuliginosus, the largest species of its genus.

71. **Tiovi** or **Manini** - Convict Tang, Acanthurus triostegus. A yellowish-white surgeonfish with irregular dark-brown vertical stripes, tiovi is very much a 'fish of the lagoon', coming closer-in to shore and into shallower water than any of its immediate relations. Tiovi regularly form a portion of the catch in day-time lagoon nettings (especially in tuku and rautata techniques, J. and K. above), and are taken in women's fishing (see Ch. 5). The given development sequence is:



The term ''io'iovi' is not widely used. The size distinction seems almost too subtle to be useful. 'Avini' is an archaic term for very large tiovi. A. triostegus can grow to 25cm., but individuals

above 16-12cm. are rarely seen at Mangaia. The fry, koninonino, are ika tauira, forming large, seasonal shoals.

The Unicornfish - a category of fish of the family Acanthuridae, genus Naso. Like the surgeonfishes, they are herbivorous.

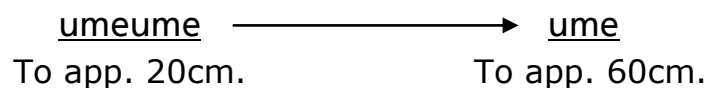
72. Ume - Unicornfish, Naso spp. Informants acknowledged two common ume types. One, dark, horned and marked with blue, corresponded to the Brown Unicornfish, N. unicornis. The second was known to some as....

72.1 Ume tuitui (This term is apparently formed by analogy with 'api tuitui', 69.4. The unicornfish has a bright orange area at the base of the tail which echoes the red patch on the surgeonfish.) Smooth-headed Unicornfish, Naso lituratus. These fish do not develop a horn, or rostrum.

Adults of both these ume are known to congregate in feeding groups of twenty to thirty on the reef slope. High tides bring them within the lagoon where juveniles are always present. Juveniles may be taken by hand from their retreats in the coral rocks of the lagoon. The fully-grown unicornfish are mainly taken with spear, or in high tide nettings, but are also known to bite on small hooks baited with seaweed.

Canoe-fishermen speak of a third, rarer ume type, dark, slender, and hornless, found only in the deeper water clear of the reef. This may be the Black Unicornfish, Naso hexacanthus, which was selected from photographs.

The development sequence for unicornfish is:



The Triggerfish and Filefish - a covert grouping of fish of the families Balistidae and Aluteridae. They are herbivores with distinctive, compressed, almost lozenge-shaped bodies. All possess a large first dorsal spine which may be erected rapidly and locked to wedge the fish into their coral-hole retreats.

73. Kokiri - Triggerfish and some Filefish, species of families Balistidae and Aluteridae. Common species referred to simply as 'kokiri' are:

Wedge-tailed Triggerfish, Rhinecanthus rectangulus;

White-barred Triggerfish, Rhinecanthus aculeatus ; and

?Marbled Triggerfish, Pseudobalistes ?fuscus.

Each of these is recognised as a distinct type. Further types distinguished in the terminology are....

73.1 Kokiri pa'a (?= Hesitant kokiri. This fish sometimes seems to offer itself to the spear by hovering, apparently indecisively, beside a rock, rather than taking cover.)

Grey Filefish, Cantherhines dumerili. Informants particularly noted that the fine, leathery skin texture of the kokiri pa'a was quite unlike the rougher scales of other kokiri.

73.2 Kokiri moana (= Ocean kokiri) or **Kokiri tako** (= black kokiri). Unlike most other kokiri, this is a 'fish of the ocean', found only outside the reef. It is almost completely black. No specimens were seen, but it is probably the Black Triggerfish, Melichthys niger/buniva, which was selected as kokiri moana from photographs.

73.3 Kokiri 'uku tea (White-tailed kokiri). No specimens were seen. Described as a generally dark triggerfish with pale fins and white tail, this may be the widely-distributed White-tailed Triggerfish, Melichthys vidus.

Kokiri are not prime food fish, but are taken for eating with line, spear, and net, mainly within the lagoon. Their rich, oily livers are considered a delicacy. Part of the fishing lore connected with them states that they are mangaika kai ate, 'fish that eat (their own) liver'. According to some of the older fishermen, if kokiri are not killed as soon as they are taken, they will begin to ingest their own liver, leaving little to be found when they are opened later. I can offer no explanation of this belief.

- 74. Karevareva** - one or more species of the family Aluteridae, probably the Figured Leatherjacket, Alutera scripta (selected from photographs, no specimens taken). Karevareva is said to have the appearance of a slender, elongated kokiri pa'a (73.1), also resembling that fish in the texture of its body-surface. Its small beak-like mouth makes it a noted mangaika kai ma'unu, 'a fish which eats the bait (without taking the hook)'. It is sometimes speared along the reef slope.

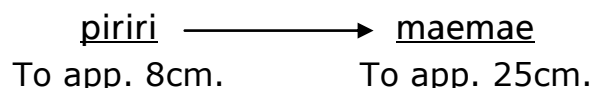
The Rabbitfish - a covert grouping of fish of the family Siganidae.

Shoals of these oval, compressed herbivores patrol the lagoon in all but the lowest tides.

75. **Maemae** (Possibly, this is related to the term 'mamae' = pain/injury. The fish has spines covered with a poisonous mucous that can cause painful wounds.) also known as

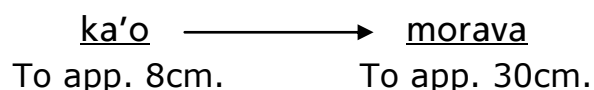
Tutae nui (= Big faeces). Lined Rabbitfish, Siganus spinus.

The development sequence is given as:



76. **Morava** - Spotted Rabbitfish, Siganus rostratus.

This has the development sequence:



The two rabbitfish are very similar, differing slightly in proportions and markings, but essentially the same in behaviour. Both have very sharp fin spines with an irritant mucous that can cause some days of painful inflammation if the skin is broken. Their close relationship is fully apparent to the Mंगाians, who frequently speak of them together. (One informant grouped maemae and morava together as 'tutae nui'. But this was not common usage.)

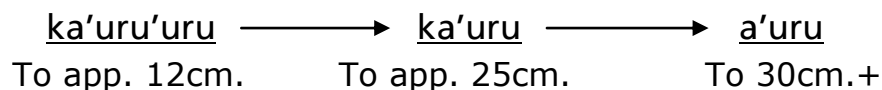
The rabbitfishes are taken by many lagoon-fishing techniques,

with hand, rod, spear, or nets. They are a common catch in day time nettings, and among the best-known and best-liked lagoon food fish. Piriri and ka'o are two more important ika tauira, shoaling in February or March.

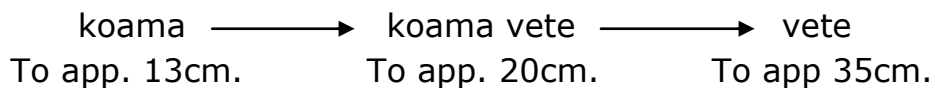
The Surmullets - a covert grouping of fish of the family Mullidae.

Small to moderate bottom-feeders of shallower waters, the surmullets, or goatfish, are readily recognised by the barbels on their lower jaws. Smalley surmullet spend much of their time within the lagoon, especially where the bottom is sandy. The larger fish will enter at high tides, leaving the reef slope.

77. **Ka'uru** - most surmullets of red or purplish colouring, Saddled Goatfish, Parupeneus trifasciatus, Parupeneus ?bifasciatus and others (possibly including some Upeneus and Mulloidichthys spp.)
The development sequence is:

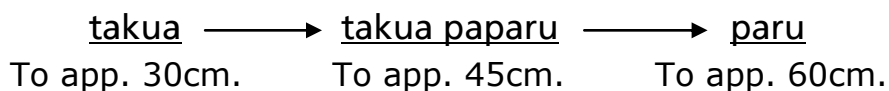


78. **Koama/Vete** - Bait Goatfish, Mulloidichthys samoensis ?and Non-spotted Goatfish, M. vanicolensis. These slender, white or pale yellow goatfishes are marked with a yellow band along the length of the body. All specimeils seen were of M. samoensis, having a dark mark about mid-body. It is claimed that some vete lack this mark. Such fish are probably the very similar M. vanicolensis.
The given life—stage sequence is:



Usually one life-stage term is dominant, that is, the others are defined in relation to it, and it is the term used to speak of a fish generally without specific regard to development. But, with 'koama' and 'vete' there is no clear pattern of dominance. Both terms are used in day to day conversation without strong life-stage connotations.

79. **Takua** – Golden-banded Goatfish, Mulloidichthys auriflamma.
Takua are considered extremely similar to koama (78.) though differing slightly in colouring, with evident pink or red tinges.
 The full development sequence is given as:



Since M. auriflamma is not known to exceed about 40cm., the identity of paru remains in doubt. It is reputed to be found in deeper water outside the reef. (A reddish, deep-water species of large size, Mulloidichthys pflugeri has been recorded in Hawaii.)

Ka'uru, koama/vete, and takua were normally, contrasted in terms of colour. Between the latter pair and ka'uru there are also contrasts of behaviour. Both takua and koama form sizeable schools, venturing into much shallower water than the ka'uru'uru which move in twos or threes. There is a seasonal peak to the in-lagoon shoals of small takua and koama between January and March.

Contrary to some authors, the surmullets will take the fish or invertebrate baits offered by rod-fishermen. The smaller fish are taken in ta'iti nets around lagoon rocks (technique 1. above). Larger nets, hand-fishing, knife, and spear all contribute to the catches of these very familiar fish.

Octopus-eating Fish - a category of fish of at least three families (Mullidae, Carangidae, and ?Balistidae) reputed to feed on the tentacles of octopus.

80. **Pakevakeva** (According to one elderly informant, the term 'pakevakeva' suggests a rapid forward movement followed by retreat, and reflects the fishes' movements as they go in to feed on the tentacles of a living octopus.) This category has certain unusual features. The term 'pakevakeva' appeared repeatedly in informants' fish lists. But, with further questioning, three different sets of descriptions emerged - a) a fish resembling ka'uru (77.), blue in the water, red when dead, i.e. a surmullet, probably a Parupeneus sp.; b) a fish resembling titia (19.) or rai (21.), i.e. a jack or trevally; c) a fish resembling kokiri (73.), i.e. a triggerfish. The Manganians do not consider the surmullets, jacks, and triggerfish to be particularly similar or closely related. Evidently, the descriptions could not all relate to one fish. Moreover, some informants maintained that more than one type of pakevakeva existed, the different types answering to the different descriptions. It eventually became clear that the pakevakeva category was founded upon particular similarities of

behaviour rather than upon similarities of physical form. All pakevakeva it was agreed, eat octopus.

The responses to my questioning suggested that the most widely known pakevakeva type is the surmullet. I also heard this spoken of as 'ka'uru pakevakeva', representing it as a ka'uru type, a subdivision of the surmullet category 'ka'uru' (77.). However, this use of 'pakevakeva' as a qualifier for another category term is not common. For the many Mंगाians who know of only one type of pakevakeva it is simply an octopus-eating fish of one or other of the groups already indicated. Those recognising more than one type may envisage a 'pakevakeva' category divided into very distinct physical forms, each of which is related to another different category or grouping of categories.

These fish have a practical significance for the activities of octopus-fishermen. Observed in their characteristic feeding behaviour, darting back and forth from a reef cavity or patch of coral, they can be taken to indicate the presence of an octopus.

The Damselfish and Sergeant-majors - a covert grouping of fish of the family Pomacentridae. Small, compressed, perch-like fishes, the pomacentrids feed in small schools, not only on the reef slope but within the lagoon, especially in the larger rock pools of the reef and shoreline.

81. **Katoti** - Pomacentrus sp. or spp. Shown photographs of brightly-coloured damselfish of the genus Chromis, informants remarked that they must be some kind of katoti, but that Mंगाian katoti were 'black' (tako). All specimens seen were of a black-brown

Pomacentrus sp. There were a few reports of two other katoti types, one white-spotted near the tail, the second, found by the reef, browner in its mid-section than the common 'black' type.

82. O'u - a pale grey damselfish, all unpaired fins tinged with blue, and with blue markings on the head; ?Abudefduf sp.
Katoti and o'u are thought very similar. Rod-fishermen say that both are 'cunning' and mangaika kai ma'unu (bait stealers). They are not, in any case, much sought-after as food, being taken mainly by women exploring rock holes with their hands or in poisoning sessions.
83. Tapa'uru - Grey-banded Sergeant-major, Abudefduf sordidus.
 From the Mangaian viewpoint, tapa'uru are only tenuously connected with the other pomacentrids, katoti (81.) and o'u (82.). They are seen as similar in some general features of structure but are contrasted with the damselfish by virtue of their deep, rounded body outline and their strong grey-black and white body markings. (Comparison with tapa'uru is used to suggest a relatively deep and rounded body profile in other fish, e.g. see 61.1, nanue tapa'uru. They can grow to about 20cm., considerably larger than 81. or 82., and, consequently are more likely to take small crab-baited hooks, and to be caught in the larger nets.

The Cardinalfish - a category of fish of the family Apogonidae. Small, elongated, carnivorous fishes, they are mainly found within the lagoon, especially in the deeper pools behind the reef ridge.

84. O'o - a pale grey or silvery cardinalfish with four darker bands on each side of the body. (It resembles, but is probably distinct from, the Nine-banded Cardinaifish, Lovamia novemfasciata. There seems to be only this one cardinaifish familiar to Mंगाians, a single o'o type. Seldom exceeding 11cm. in length, o'o are another of the small lagoon fish of minor importance as food. They are taken by hand, knife, and poison, or sometimes hooked at night, when they are most active.

The Soapfish - a category probably comprising a single species of the family Serranidae, subfamily Grammistinae. The bodies of these small sea basses are covered in a layer of bitter-tasting mucous, protecting them from predators. In the scientific taxonomy they are closely related to the sea basses and groupers. Mंगाians did not attribute any clear group membership to....

85. Akapekape (?= Like the kape i.e. giant taro. The mucous on the fish's skin is compared to the slimy sap of the giant taro.) No specimens were seen, but descriptions and photograph identifications make it clear that akapekape is the Chain-gang Sea Bass, or Six-lined Soapfish, Grammistes sexlineatus. One of the less common and less well-known 'fish of the lagoon', akapekape are occasionally speared or hooked as they move among the coral rocks of the lagoon floor. They may be eaten once the mucous coating has been scraped away.

The Porcupinefish and Pufferfish - a covert grouping of fish of the suborder Tetradontoidei. These globular, small-finned fish are able to inflate their bodies with water or air in a defensive reaction. The porcupinefish differ from the pufferfish in having bony spines embedded in the skin. These are erect when the fish are inflated.

86. **Totara** (= Spiky one). Porcupinefish, Diodon hystrix ?and others. Totara are often taken within the lagoon, their slow movements and defensive tactics making them particularly vulnerable to spears. Their rich, oily livers are much prized as food. Like the triggerfish, kokiri, they are reputed to be 'fish which eat their own liver' (see 73.).

87. **'Ue'ue taka-tai** (= Small and gourd-shaped bathing in the sea). Pufferfish, Arothron meleagris, Arothron nigropunctatus ?and others. Like the porcupinefish, 'ue'ue taka-tai are found both on the reef slope and in most areas of the lagoon. They are readily speared, or may even be captured by hand in shallower water. Two types are recognised, apparently corresponding to the two species indicated. Both are considered edible after careful skinning and gutting, but are known to be potentially very poisonous. They are little fished.

The Boxfishes - a category of fish of the family Ostraciidae, small, slow-moving fish, encased in bony carapaces.

88. **Moamoa** - Boxfishes, Ostracion spp. Two types were known, the commonest, dark brown with pale spots, corresponding to the Multispotted Trunkfish, Ostracion lentiginosum. The second, yellowish type was spoken of as....

88.1 Moamoa renga (= Yellow moamoa) Yellow Boxfish, Ostracion cubicum.

Small moamoa can be seen even in the shallowest parts of the lagoon. They are so slow-moving that even young children can capture them. However, they are not eaten and are among the few fish to be considered 'puapinga kore', 'without any uses'.

The Flatfishes - a category of fish of the order Pleuronectiformes, principally, or entirely, of the family Bothidae. Oval and extremely compressed, they are fishes of the flat bottom, found on the flatter areas of the lagoon floor, particularly to the seaward side. Some are capable of camouflage colour changes, blending with the rock or sand surface or which they lie.

89. **Patiki tere-vare** (?= That which squats down/is compressed and moves deceptively) or **Pateretere**. Flounders, spp. of family Bothidae, ?and others. Both terms were applied to two species of Left-eye Flounder, family Eothidae, the only flatfish seen.

Flounders are sought by feeling with the foot (in sandy areas, taken with spear and hand, or rod-fished in the lagoon and 'harbour' channels.

The flattened body is certainly regarded as unusual for a mangaika. For the mythical explanation of its origins see Ch.10.

The Lionfishes or Butterfly Cods - a category composed of species of the family Scorpaenidae, genera Pterois and Pteropterus.

Lionfishes, often brightly striped, have much enlarged fins, including almost wing-like pectorals, and are equipped with poisonous spines capable of causing serious wounds.

90. **Tatarai'au** (= Many-spined). Lionfish, Pteropterus antennatus, a dark Pterois sp., ?and others. Informants suggested that there were three types of tatarai'au, differing slightly in colour and in the size of their pectoral fins.

Lionfish move freely into all but the shallowest parts of the lagoon. The danger of their spines is known to all engaged in fishing, but their spectacular appearance makes them easily noticeable and readily avoidable if necessary. Being slow-moving, they are easily speared. Tatarai'au are not highly favoured as food, but larger ones, suitably de-spined, are eaten.

The Scorpionfishes and Stingfishes and Their Associates - a category of fish mainly of the family Scorpaenidae, but probably including some Synanceiidae, Stonefishes. Mainly mottled-brown in colouring, blending with the rock and sand on which they lie, and bearing highly poisonous spines, these fishes represent a serious danger to fishermen and sea-food collectors. Even small species of scorpionfish can cause

painful inflammations lasting for several days. The stonefishes can deliver a potentially fatal dose of neurotoxin.

91. No'u - Scorpionfishes and Stonefishes, species of the family Scorpaenidae, and others. The term 'no'u' was applied to specimens of a small scorpionfish of the lagoon rocks. (This has not been definitely identified, but is probably a Sebastapistes or Scorpaena sp.) At least two no'u types are recognised:

91.1 No'u toka (= Rock no'u.) These are small scorpionfish found on coral rock or in rock holes. (They probably include Sebastapistes bynoensis, which has been recorded in the Southern Cooks - Gibbs, Vevers and Stoddart, 1975.)

91.2 No'u one (= Sand no'u.) These rather larger fish lie camouflaged in sand on the lagoon floor. (They may be Stonefish, Synanceichthys verrucosa.)

(Photographs of Stonefish, S. verrucosa and Scorpionfishes, Scorpaenopsis spp. were all identified as no'u.)

A black anglerfish, Antennarius sp., was also tentatively identified as a form of no'u. With a rather shapeless, bulbous body, it was, superficially, not unlike some larger stonefishes.

Accidents involving scorpionfishes and stonefishes are rare, but there are a number of traditional counter measures for no'u poisoning. One of the best-known of these is a technique of striking certain areas of the body, said to reduce the otherwise acute pain, and to impede the spread of the poison. Other treatments involve the application of hot stones to the wound or

the use of poultices of plant material, e.g. 'ora papua (Derris sp.) or a vine, ka'eta (not identified).

No'u are thought both dangerous and ugly, a mangaika kino, 'bad fish'. Nonetheless, taken by rod-fishing or spear, they are sometimes eaten.

Lizardfishes and Sand Gobies - a category of fish comprising species of the families Synodontidae and Gobiidae. The Synodontidae are solitary, lizard-like, bottom-dwellers of the reef slope, predators on smaller fish. Though not closely related to them, in terms of scientific taxonomy, certain small gobies, living around the rocks and on the sandy bottoms of Mangaia's shoreline pools, do bear some resemblance to the lizardfish. Both sets of fishes have narrow, elongated bodies, rounded in cross-section, and mottled-brown camouflage colouring.

92. **Karaea** (?= Clay-coloured). Lizardfish, Saurida gracilis ?and others, Sand Gobies, Gobiid sp. (similar to Bathygobius fuscus). The lizardfish, with their array of knife-shaped teeth, are jokingly referred to as 'araketa' (coined from 'alligator'). They are not much eaten, but are sometimes taken with spear or knife. Some informants were convinced that there was a single karaea type, and that, despite differences in fin and tooth form, the sand gobies were the juveniles of the lizardfish. Others were sceptical about this view, regarding the rock-pool gobies as a distinct, smaller type of karaea.

The Blennies - a category of fish principally, or entirely, of the family Blennidae. The blennies are small, carnivorous fish mainly found in the lagoon shallows and shoreline rock pools, though some are reef-dwellers.

93. Panako - Blennies, species of the family Blennidae, ?and others. Informants observed that there are many slightly differing panako types. Some five types are indicated in the terminology.

93.1 Panako ta'a-reva (?= Banner-waving panako This is probably a reference to the broad dorsal fin.) Istiblennius ?edentulus, a large (to 17cm.), dark grey-brown, crested blenny, with faint paired croasbands on the body.

93.2 Panako komotumotu (= Banded panako) This blenny is very similar to the preceding type, but has a less elongated body.

93.3 Panako avare (= Slippery panako) ?Istiblennius sp., a pale, small, crested blenny of the shore pools and rocks, marked with paired brown bands and brown spots. The term 'panako avare' is not widely used. For many these common blennies were simply 'panako'.

93.4 Panako 'akau (= Reef panako). Exallias brevis, a deeper-bodied blenny which is marked with clusters of pinkish-brown spots. Unlike most other panako it is not found on the shoreward side of the lagoon, but on the reef slope and close to the reef ridge.

93.5 Panako urutuki (No precise interpretation of 'urutuki' was offered, but it was said to suggest something ugly or unpleasant.) Some informants believed that panako 'akau and panako urutuki were the same fish. However, others described the panako urutuki as a fish with an ugly, disproportionately-large head, comparing it in appearance to a scorpionfish, no'u (91.), or a lizardfish, karaea (92.). No specimens of this 'true' panako urutuki were seen.

When panako are taken for bait it is not unusual for poisons to be employed to bring the fish from their holes in the rock pools. Besides the poisons already listed, crushed tobacco leaves may be used, or a sea-cucumber, rori tapao (Ch. 5-1.1). The latter is scraped on the rock in order to release holothurin toxin from the outer layers of the body. Larger, eaten panako are largely taken with hand and knife, mainly at night, often out of the water on the shore rocks. Informants believed, probably correctly, that the panako came onto the beach rock at night to feed on manumanu, 'small insects'. Blennies are not greatly prized as food, being a minor catch, something more of women's fishing than of men's.

Mangaian Turtle, Eel, and Fresh-water Fish Categories

As noted in Ch. 3, the intuitions of Managains vary in defining the limits of the 'mangaika/ika' category. The turtles, eels, and freshwater fish all fall close to the doubtful boundaries, either being regarded as very untypical mangaika or being excluded from that category, almost, but not quite, mangaika.

MARGINAL MANGAIKA

Turtles - a category of marine reptiles of the order Chelonia.

94. **'Onu** - Turtles. Turtle sightings are rare at Mangaia. I saw no specimens, nor were any recent sightings reported to me in the fieldwork period. Apparently, there has never been any organised turtle-fishing. However, 'onu have been known to take the hooks of canoe fishermen. In the pre-Christian period, if a fisherman should catch a turtle he was obliged to offer it at the marae of the god Rongo to be eaten, in part, by the Shore High Priest (Gill, 1880:1. See also Ch.10.).

Probably the most likely turtle species to appear in Mangaian waters is the Green Turtle, Chelonia mydas.

The Marine Eels - A covert grouping of fish of the families Ophichthyidae, Muraenidae, and Leptocephalidae. While the largest moray eels live in cavities in the coral of the reef slope, many smaller eels find homes in rock holes within the lagoon.

95. **Pu'i** - Conger Eels, Conger cinereus and others. Conger eels are fished within the lagoon by the mangai method, hook and bait being thrust into their holes with pole or rod (technique R. above). Of all the sea eels pu'i are considered the best eating. Their development sequence is given as:

toketoke pu'i	→	pu'i ?	→	mamaru
To app. 20cm.		To app. 1m.		To 2m.+

Without being at all clear as to the mechanics of conception and birth, many informants maintained that the mother of conger eels was the sea-cucumber ngata (Ch. 5- 2.) and insisted that they had seen toketoke pu'i within ngata.

Specimens of a small, eel-like pearlfish, Carapus sp., were identified as toketoke pu'i. These fish have a commensal relationship with certain sea-cucumbers, inhabiting their respiratory trees, and could, undoubtedly, be found within ngata.

A different Manganian account of the birth of the pu'i states that their mother is an extremely large eel, or eel-like fish, known as 'mamaru'. It is reported to have been seen swimming with many of the smaller pu'i clinging to the sides of its head, or, as one informant had it, hanging onto its ears/pectoral fins'. Mamaru are said to be inedible. If they are brought ashore they will 'melt' or 'fall into water'. Apparently the flesh disintegrates. The circumstantial details offered convince me that mamaru are more than legendary, though I am far from certain as to what fish, or fishes, could have inspired these accounts.

A few Mangaians embraced both theories of pu'i birth, saying that some pu'i were born from mamaru and some from ngata. One man suggested that it was possible to identify those eels born from the sea-cucumber by their greater number of bones. Sceptics, influenced by school natural history teaching, are now beginning to doubt both theories.

95.1 Pu'i kotuku (= Reef heron . Informants maintained that this eel will swim with its head held upright out of the water. Its appearance is compared to that of the long neck and head of the reef heron, kotuku, Ch. 6-9.) Spotted Snake-eel, Myrichthys

maculosus. Unlike the 'true' pu'i, these slender eels are not much eaten. But, being attracted by light, they are often seen by torch-fishing parties, and may inflict painful bites.

96. **Kerekere** (=Dark. Though it is not entirely the case, pu'i, 95., are generally considered to be paler in colouring than the other sea eels of the category.) Moray Eels, species of the family Muraenidae. Informants posited about ten kerekere types, rather more than are reflected in the terminology.

96.1 **Kerekere roriki** or **Roriki** - Speckled Moray, Gymnothorax meleagris, a dark brown eel covered with fine white spots. Most caught are less than 60cm. in length.

96.2 **Kerekere parakava** or **Parakava** - Starry Moray, Echidna nebulosa, a whitish eel with two rows of dark, star-shaped blotches along the body. Again, most seen were below 60cm.

96.3 **Kerekere va'atea** (= White-mouthed kerekere) a dark brown eel, white around the mouth. No specimens were seen. Descriptions suggest Echidna leucotaenia.

96.4 **Kerekere va'a-roa** or **Va'a-roa** (= Long-mouthed). (A few informants held kerekere va'aroa and va'aroa to be two different eels, or, possibly, juvenile and adult forms.) A single specimen of the moray Enchelynassa ?canina was identified as a va'aroa. This fish has a wide gape and long, fang-like teeth. Va'aroa are reputed to be the most wild (ta'ae) or aggressive of eels, and have certainly been known to chase fishermen. Growing to about

1.7 metres, they are among the most dangerous of Mangaia's fishes.

96.5 Kerekere tu'ua or Tu'ua - Echidna sp., a large grey-brown moray, in excess of 1 metre in length, with three rows of faint darker rings or spots along the body.

96.6 Kerekere pata or Pata (= Spotted), a very large, dark moray eel which lives in crevices on the reef face. No specimens were obtained. Pata are regarded as potentially very dangerous, possibly more so than sharks. A single spear-fisherman has to be very daring to take on a large pata. (From photographs, the Javanese Moray, Gymnothorax javanicus, was tentatively identified as a pata.)

96.7 Kerekere raravai - an eel described either as brown or white with 'flower-like' patches. No specimens were obtained.

96.8 Kerekere kutekute (= Brown kerekere) small brown or grey and brown Gymnothorax spp.

Some Mangaians also used the joky colloquialism 'kerekere tutae puaka' (= Pig's dung kerekere), the referent of which I did not discover.

Small morays may be fished by the mangai technique (R. above) or taken with rod and line from the reef. At night they are attracted by the lamps of 'torch'-fishermen and can be speared or knifed. The larger morays, such as va'aroa or pata are quite capable of breaking most rod lines, and are, now, only rarely

fished from canoes with heavier line. Spear-divers get a certain frisson out of taking a large eel, but some made it clear that their eating qualities did not justify the risk or the effort.

The Fresh-water Eels - a category of fish of the family Anguillidae.

Despite general acknowledgement of the physical similarities of sea and fresh-water eels, and despite the fact that both were the objects of a traditional dietary prohibition for women (see Ch. 8), there remains a strong sense of their distinctness. Notably, certain informants who were willing to accept the marine eels as mangaika in the fullest sense, still excluded the fresh-water eels.

97. **Tuna** – Fresh-water Eels, Anguilla spp., inhabiting the streams, lakes and taro swamps. Three or four tuna types were proposed, though there was great variation in the terminology used. The first of these types, described as a predominantly and evenly grey eel, rarely exceeding 1m. in length, and living in the taro swamps, was known simply as 'tuna'. The other terms and descriptions fall into three sets.

97.1 **Tuna potopoto** (= Short tuna) or **Tuna mata-iti** (= Little-eyed tuna) or **Tuna itiki** - all specimens taken were of this type, Colouring and fin measurements conformed to Anguilla obscura. None were in excess of 50cm. in length. Some informants believed that whereas tuna mata-iti were indigenous to Mangaia, tuna itiki, a slightly different small eel, had been introduced earlier in this century from the island of Mitiaro. They identified A. obscura as tuna itiki.

97.2 Tuna roroa (= Long tuna) or **Tuna kaveu** - a very large eel said to favour the pools at the points where streams enter the taro swamps. The largest individuals are reputed to reach 2 m. or more.

97.3 Tuna ko'u or **Tuna moko** or **Tuna moko'iro** or **Tuna purepure** (= Spotted tuna), irregularly blotched eels said to favour stream banks, living among tree roots. (The marbled Anguilla megastoma has been recorded in the Southern Cooks. Teach, 1973.)

The Southern Cooks are within the range of Anguilla marmorata and, possibly, within that of A. australis schmidt.

All tuna follow the development sequence:

kavere —————→ tuna
To app. 25cm.

Kavere are fully-developed elvers.

Eel-traps (inaki) made of vine have been made on Mangaia in this century. However, they are not widely used, and it is not clear whether they were present in the pre-contact period. A more common method of taking fresh-water eels is to use sleeping hooks (moe matau). Lines attached to stakes planted in the bank are left overnight, the hooks being baited with gudgeon, prawns, wasp larvae, worms, or the singed bodies of young birds. The stake is sometimes replaced by a float (poito). Alternatively, eels are often knifed in shallow water. When the water levels are low, the mud of the channels taking water into the swamps may be deliberately stirred-up, to bring out smaller eels which can

then be knifed or scooped-up into baskets. The night of the new moon is considered especially favourable for tuna fishing. The term 'tango' is applied both to the fishing of eels and the taking of gudgeon.

The Fresh-water Gudgeons - a category comprising one or more species of the family Eleotridae, small fish of the muddy bottom in inland waters.

98. **Kokopu** - dark brown gudgeons, Eleotris sp. or spp.

There is a development sequence:

<u>kokopu</u>	—————→	<u>patu</u>
To app. 16cm.		To 20cm.+

In fact, the term 'patu' is not in everyday use, but it is known to those familiar with the local legend of the cannibal warrior Ruana'e, which involves patu fishing.

Kokopu are now seldom fished for food by adults, though they may be taken as bait. Boys and youths have always had an interest in gudgeon angling, baiting their hooks with prawns or worms. Myth credits the son of the god Tangaroa with the invention of a technique of fishing gudgeon using a simple plant-fibre line and pandanus leaf thorns as hooks (Gill, 1876a:118). As mentioned earlier, co-operative netting of shoals of very young kokopu (kokopu tauira) was carried out, in the early years of this century, in Mangaia's largest lake, Tiriara.

The Tilapia - an exotic food fish introduced into Mangaia in recent years.

99. Tirapia - Tilapia mossambica. All seen were of small size, under 15cm. Few adults take any interest in their fishing. They are to be found mainly within the ring of taro swamp.

Broader Category Relationships and General Comment

A notable feature of the Mangaian fish terminology is the lack of terms referring to groupings of the middle levels of generality (of 'intermediate taxa' in Berlin's terms). However, descriptions, comparisons, and explicit statements of relationship make it clear that numerous covert groupings do exist. I have attempted to indicate these in the listings just given and they will be shown again in the schematic survey which concludes the chapter.

The ocean to shore progression, reflected in the distinctions between 'ocean fish', 'reef fish', and 'lagoon fish', has been used as a general guideline for the listings. I have suggested that it would be difficult to draw hard and fast boundaries between 'ocean', 'reef', and 'lagoon' fish which would satisfy even a majority of Mangaians. Difficult, or impossible, as it is to distribute all fish categories between these three divisions, some further guide to the distinctions can be offered.

Following this chapter's numbering system for listed categories: from 1. to 23., with the Tuna, Swordfish, Snake Mackerel, Shark, Suckerfish, Ray, and Jack groups, those creatures considered to be 'mangaika o te moana', 'fish of the ocean', undoubtedly predominate. From 24. to 45. there is a scattering of fish often said to be 'of the ocean', such as the flying-fishes and some of the rock cods living on the outer parts of the reef slope. From 46. onwards there are only very occasional instances of 'ocean fish', such as the triggerfish kokiri moana (73.2).

(A fairly typical list of 'ocean fish' compiled by my informant C. Vaevae Rani of Oneroa comprised the following: 1.-6., 9.-20., 23., 27., 29.-35., 39., 65.)

It is also safe to say that from 67. to 93. 'mangaika o te roroka', 'fish of the lagoon', predominate, the major groupings concerned being Butterflyfish, Surgeonfish, Unicornfish, Surmullet, Damselfish, and Blennies. However, the boundary between 'reef' and 'lagoon' fish is particularly unclear, some informants preferring to prepare lists combining them as 'fish of reef and lagoon'.

I do not wish to inflate the importance of the three zone division of the sea fishes. It is certainly not to be seen as the definitive Mangaian way of conceptualising the fish realm. The distinctions involved have a status very similar to that of our own folk distinction between 'sea fish' and 'inshore fish'. Such divisions are convenient for many circumstances, but, nonetheless, cross-cut other categories, not necessarily forming part of an integrated hierarchy of categories. These convenient divisions may, as the context dictates, be conflated, as when lagoon and reef fish are treated as a single unit, or further refined (e.g. one informant proposed a distinction between 'lagoon fish' living in the deeper water towards the reef and those living in the

shallows near the shore, while another fisherman favoured a distinction between the 'ocean fish' swimming in the upper waters, the pelagic fishes, and those taken at greater depth).

Within the various covert groupings, certain fish and the category terms associated with them are particularly well-known, and these fishes provide a focus for statements of comparison, to the extent that some groupings can virtually be defined as 'the fish like X'. The tuna category 'a'ai' is dominant within its group. I was frequently told that varu (3.) were just like a'ai (1.). To say of these tunas that a'ai are like the varu would be perfectly correct but rather curious, as if one were to explain to an Englishman that horses are like zebras. All comparisons depend upon assumptions about familiarity. To put it crudely, in explaining to someone to what an unfamiliar term refers it is no use making comparisons with something which is likely to be equally, or even more, unfamiliar. We take into account this very obvious fact every time we make explanatory statements of resemblance. Within a given cultural and natural setting, explanatory comparisons tend to proceed in one direction - from that which is assumed to be the more familiar. For Mंगाians, there is a core of well-known fish that are a ready base for comparisons. Wrasses were regularly said to be 'like pa'oro' (47.), jacks to be 'like titiaara' or 'of the family of the titiaara' (19.). Many rock cods and groupers were compared to karau (28.) or, if of reddish colouring, to atea (30.). Such very familiar fish are reference points in conceptualising the whole fish realm. As far as possible, I have placed those categories dominant in comparisons first in the listing of each covert grouping.

In this chapter I have used the expressions 'life-stage sequence' and 'development sequence' as equivalents. Mंगाians see the movement from one stage to the next simply as one of growth and

development. It may be said of the jack titiaara, 'me mama'ata ei urua' 'when it is big it will be an urua', or 'ka riro te titiara i te urua' 'the titiaara becomes an urua'.

The conception is of a single organism gradually changing over a period of time. With the titiaara to urua sequence the change involved is little more than that of growth. In other cases there are supposed colour-changes and modifications of form. But, notably, those development sequences involving the maximum of structural change were also those most likely to be questioned by today's Mंगाians, the least likely to be accepted by all (e.g. the supposed development from scad to bonito to tuna, or that from half-beak to needlefish).

In many cases the category term for a given fish type, or set of fish types (such a term as would be given in listing fish known, a head term in this chapter numbered sequence of categories), is also a life-stage term within the development sequence for that type, or set of types. Where this is so, other life-stage terms are normally defined in relation to the dominant category/life-stage term. So it is not unusual to say that ngorengore is 'a little pa'oro' (47.) or that urua is 'a big titiaara (19.). On the other hand, to say that pa'oro is 'a big ngorengore' or titiaara 'a little urua' would be peculiar, like saying that 'a swan is a big cygnet'. (In terms of structural linguistics, one might argue that what I have called the dominant category/life-stage term can be contrasted with other life-stage terms as an unmarked lexeme contrasted with marked lexemes. This would be a case of semantic marking, the other life stage terms being more specific in sense - Lyons,1977:305-8.) Note that the dominant term is not necessarily that for the final stage of the development sequence.

Summary of Categories

In this summary, and those following the next three chapters, these conventions apply:

- 1) The degree of relationship between categories within major groupings, in terms of assessments of overall similarity, are indicated by the lines found next to the left-hand margin.
- 2) Double, continuous lines are used to indicate sets of categories all referred to by terms incorporating the same head-term, which is listed in the main number sequence, and all seen as closely-linked subdivisions of the main sequence category. Such categories have been listed in secondary sequence under a single head number. In terms of the taxonomic model of Berlin et al. these are almost invariably 'specifics' subsumed under a single 'generic'.
- 3) A single, continuous line is used to join categories between which comparisons were habitually made, or which were spoken of in terms of family relationship. (For example, the various jacks, 19.-23., were often spoken of as 'like the titiaara' or 'of the family of the titiaara' and consistently compared to each other. They are not referred to by compound lexemes incorporating a single head-term, and are shown here linked by a single, continuous line.)
- 4) A single, broken line is used to suggest a more tenuous relationship, a partial comparison or more limited perception of similarity. Further explanation will usually be found in the main text entries, though, in some cases, an explanatory note has been added to the summary.

- 5) In cases where within a certain group of creatures frequently spoken of as similar and related there are certain sub-groups seen as even more closely related (but which are not subsumed by a single main sequence category) I have suggested this fact by pairing a broken line with a continuous line (So, most of the categories within the wrasse group, 47.-56., are joined by a single, continuous line, in recognition of their perceived general relatedness. However, arera and re'u, 51. and. 52., are considered especially similar, and are therefore also joined by an additional broken line.)

This method of representing the linkage of categories is an attempt to indicate recognised degrees of similarity without explicitly positing several levels of covert 'intermediate taxa'. It is, admittedly, crude. Assessments of varying degrees of similarity do not readily lend themselves to any binary representation. Nor can they, in any but rigorous and often artificial experimental contexts, be readily quantified. It is doubtful whether the lines here indicating a certain degree of similarity or relatedness can be taken to have some sort of absolute value from chapter to chapter. It may be possible to say that fish A is more like fish B than fish C. But there may well be more of a problem in attempting to say whether fish A is more like fish B than shellfish A is like shellfish B (except when the first two are very obviously similar and the second two obviously dissimilar). Nonetheless, within the context of particular chapters and animal grouping, I believe that the system adopted here is an adequate guide to Manganian conceptions.

The Tunas and Their Associates

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| 1. <u>A'ai</u> , Tunas and Germons | Spp. of family Thunnidae |
| 1.1 <u>A'ai otava</u> | <u>Neothunnus macropterus</u> |
| 1.2 <u>A'ai to'everi</u> | ? <u>Thunnus alalunga</u> |
| 1.3 <u>A'ai piri-varu</u> | ? <u>Thunnus obesus</u> |
| 2. <u>Au'opu</u> , Bonitos and
Little Tunas | <u>Katsuwonus pelamis</u> ?and
<u>Euthynnus affinis</u> |
| 3. <u>Varu</u> , ?Smooth Tunas | ? <u>Gymnosards nuda</u> |
| ? Dolphinfish | |
| 4. <u>Ma'ima'i</u> , Dolphinfishes | <u>Coryphaena</u> ? <u>hippurus</u> |

The Swordfishes and Their Associates

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|-----------------------------------|---|
| 5. <u>Kaku</u> , Wahoos | <u>Acanthocybium solandri</u> |
| 6. <u>'Akura</u> , Swordfish | Spp. of family Istiophoridae
?and family Xiphiidae |
| 6.1 <u>'Akura pererau</u> | <u>Istiophorus gladius</u> |
| 7. <u>Miromiro</u> , Half-beaks | Spp. of family
Hemirhamphidae |
| 8. <u>Kakukaku</u> , Needlefishes | Spp. of family Belonidae,
<u>Platybelone</u> ? <u>argalus</u> et al. |

The Snake Mackerels and Their Associates

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| 9. <u>Manga</u> , Snake Mackerels | Spp. of family Gempylidae,
<u>Promethichthys prometheus</u>
et al. |
| 9.1 <u>Manga kai'ara</u> | ? <u>Gempylus serpens</u> |
| 9.2 <u>Manga tangitu'oro</u> | |
| 9.3 <u>Manga ru'i</u> | |
| 10. <u>Vena</u> , Castor-oil Fish | <u>Ruvettus pretiosus</u> |
| ? Barracudas | |
| 11. <u>Ono</u> , Barracudas | <u>Sphyræna</u> spp. |

The Sharks

12. Mango, Sharks

Spp. of order Lamniformes

12.1 Mango iravaru

Sphyrna sp. or spp.

12.2 Mango papera

The Suckerfish

13. Taritari, Remoras

Sp. or spp. of family
Echineidae

The Cetaceans

14. To'ora, Larger Whales

15. A'angu, Smaller Whales

?Globiocephala sp.

16. Tutu, Dolphins

Sp. or spp. of family
Delphinidae

17. Ta'airangi, ?Porpoise

?Sp. of family Phocaenidae

The Rays

18. Tamanu, Stingrays and others

Spp. of order Myliobatiformes

The Jacks or Trevallies

19. Titiaara, Blue Jacks and others

Caranx melampygus and
other Caranx spp.

20. Ru'i, Black Jacks

Caranx lugubris

21. Rai, Spotted Jacks and others

Carangoides ferdau ?and
Trachinotus sp.

22. Kuri, Jack-like fish
with large front teeth

23. Nato, ?Horse-eye Jack

?Caranx sexfasciatus

The Scads and Their Associates

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|---|-------------------------------|
| 24. <u>Ature</u> , Silver Scads | <u>Selar crumenophthalmus</u> |
| 25. <u>Koperu</u> , Mackerel Scads | <u>Decapterus pinnulatus</u> |
| The Tricolour Fusileers | |
| 26. <u>Tamanu</u> , Tricolour Fusileers | <u>Pterocaesio tile</u> |

The Flying-fish

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|-----------------------------------|----------------------------|
| 27. <u>Maroro</u> , Flying-fishes | Spp. of family Exocoetidae |
|-----------------------------------|----------------------------|

The Rock Cods, Sea Basses, or Groupers, and Their Associates

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| 28. <u>Karakarau/Karau</u> , brown-spotted
Sea Basses | <u>Epinelphus hexagonatus</u> ?=
<u>E. merra</u> et al. |
| 28.1 <u>Karau tapairu</u> | <u>Epinelphus</u> sp. |
| 29. <u>Ro'i</u> , Blue-spotted Groupers | <u>Cephalopholis argus</u> |
| 30. <u>Atea</u> , Scarlet Sea Basses | <u>Epinelphus fasciatus</u> |
| 31. <u>Taratara</u> , Lunar-tailed Rock Cods | <u>Variola louti</u> |
| 32. <u>Rari</u> , a reddish-brown Sea Bass | Sp. of family Serranidae |
| 33. <u>Papa rari</u> , ?Flag-tailed Sea
Basses | ? <u>Cephalopholis urodelus</u> |
| 34. <u>Papa</u> , an orange-red Sea Bass | Sp. of family Serranidae |
| 35. <u>'Apuku</u> , a dark, marbled Sea
Bass | ? <u>Epinelphus</u> sp. |
| 36. <u>Patuki</u> , Handfishes | Spp. of family Cirrhitidae
<u>Cirrhitides pinnulatus</u> et al. |
| 36.1 <u>Patuki iva</u> | <u>Paracirrhitides</u> sp. and
? <u>Paracirrhitides hemistictus</u> |
| 37. <u>Marau'ange</u> , Striped Handfishes | <u>Paracirrhitides arcatus</u> |

The Snappers and Sea Perch

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| 38. <u>Tavatava</u> , Golden-lined Sea Perch and Small-toothed Jobfish | <u>Gnathodentex aureolineatus</u>
<u>Aphareus furcatus</u> |
| 39. <u>Paru</u> , a large fish similar to the Jobfish | |
| 40. <u>Morenga</u> , Black-spot Snapper and Blue-lined Sea Perch | <u>Lutjanus monostigma</u> and <u>Lutjanus kasmira</u> |
| 41. <u>Tangao</u> , Black-spot Snapper and others | <u>Lutjanus monostigma</u> and <u>Lutjanus</u> sp. or spp. |
| 42. <u>Angamea</u> , a large, red Snapper | ? <u>Lutjanus bohar</u> |

The Tropical Porgies

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| 43. <u>Mu</u> , Large-eyed Sea Bream | <u>Monotaxis grandoculis</u> |
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The Parrotfishes

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| 44. <u>U'u</u> , Parrotfishes | Spp. of family Scaridae |
| 44.1 <u>U'u o kura</u> | <u>Scarus ?lepidus</u> |
| 44.2 <u>U'u mamaringa</u> | ? <u>Scarus gibbus</u> |
| 45. <u>Pakati</u> , Parrotfishes | Spp. of family Scaridae |
| | <u>Calotomus spinidens</u> , <u>Scarus sordidus</u> , <u>S. jonesi</u> et al. |
| 46. <u>Pau'u</u> , ?Petroleum Parrotfish | ? <u>Leptoscarus vaigensis</u> |

The Wrasses

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| 47. <u>Pa'oro</u> , Fire Wrasse, Puzzle Wrasse and Purple Wrasse | <u>Thalassoma</u> spp. |
| 47.1 <u>Pa'oro mutukura</u> | <u>Thalassoma fuscum</u> |
| 47.2 <u>Pa'oro 'ina</u> | <u>Thalassoma umbrostigma</u> |
| 47.3 <u>Pa'oro matakiva</u> | <u>Thalassoma purpureum</u> |
| 48. <u>Karore</u> , Lunar-tailed Wrasse | <u>Thalassoma lutescens</u> |

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| 49. <u>Pa'o</u> , Sharp-nosed Wrasses | <u>Cheilio inermis</u> |
| 50. <u>Pa'opa'o</u> , Rainbow Wrasses,
and others | <u>Halichoeres trimaculatus</u> et
al. |
| 51. <u>Arera</u> , Spotted Chisel-tooth
Wrasses | <u>Anampses caeruleopunctatus</u> |
| 52. <u>Re'u</u> , Blue Chisel-tooth Wrasses | <u>Anampses diadematus</u> |
| 53. <u>Pa'ue'ue</u> , Trilobed Maori
Wrasses, ?and. others | <u>Cheilinus trilobatus</u> ?et al. |
| 54. <u>Katiarangi</u> , Thick Lips | <u>Hemigymnus fasciatus</u> |
| 55. <u>Aupa</u> | ? <u>Coris</u> sp. |
| 56. <u>Takataka</u> , Bird Wrasses | <u>Gomphosus tricolor</u>
?= <u>G. varius</u> |

The Grey Mullet

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| 57. <u>Kanae</u> , Mullet | Spp. of family Mugilidae |
| 57.1 <u>Kanae va'a roa</u>
'juvenile' | ? <u>Crenimugil crenilabris</u> |
| 57.2 <u>Kanae va'a potu</u> | <u>Neomyxus chaptalli</u> |
| 58. <u>Ka'a</u> , Diamond-scale Mullet | <u>Mugil</u> sp. or spp.
<u>Liza</u> ? <u>vaigensis</u> |

The Threadfins

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|-----------------------------|------------------------------|
| 59. <u>Moi</u> , Threadfins | <u>Polydactylus sexfilis</u> |
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The Flagtails

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|------------------------------------|---|
| 60. <u>A'ore</u> , Banded Flagtail | <u>Kuhlia taeniura</u> |
| 61. <u>Aputu</u> , Silver Flagtail | <u>Kuhlia</u> ? <u>marginata</u> /
? <u>sandwichiensis</u> |

The Rudderfish

- | | |
|-------------------------------|-----------------------------|
| 62. <u>Nanue</u> , Rudderfish | <u>Kyphosus</u> spp. |
| 62.1 <u>Nanue tapa'uru</u> | <u>Kyphosus cineaescens</u> |
| 62.2 <u>Nanue morava</u> | <u>Kyphosus</u> sp. |

The Trumpetfish and Cornetfish

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|---|---|
| 63. <u>Anu</u> , Trumpetfishes and Cornetfishes | <u>Aulostoma chinensis</u> ?=
<u>A. valentini</u> and
<u>Fistularia petimba</u> |
|---|---|

The Soldierfish and Squirrelfish and Their Associates

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| 64. <u>Ku</u> , Soldierfishes and Squirrelfishes | Spp. of family Holocentridae |
| 64.1 <u>Ku taraea</u> | <u>Holocentrus</u> spp., ?and
<u>Kutaflammeo</u> spp.
<u>H. microstomus</u> et al. |
| 64.2 <u>Ku ta</u> | <u>Holocentrus spinifer</u> |
| 64.3 <u>Ku mata nui</u> | <u>Myripristis</u> spp. |
| 65. <u>Po nui</u> , Red Bullseye | <u>Priacanthus ?cruentatus</u> |

The Sweepers

- | | |
|-------------------------------|----------------------------|
| 66. <u>Tapatai</u> , Sweepers | <u>Pempheris oualensis</u> |
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The Butterflyfish, Angelfish, and Moorish Idols

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|--|---|
| 67. <u>Ti'iti'i</u> , Butterflyfishes,
Moorish Idols, and some
Angelfishes | <u>Chaetodon</u> spp., <u>Heniochus</u>
<u>monoceros</u> , <u>Pomacanthodes</u>
<u>imperator</u> (juvenile) |
| 67.1 <u>Ti'iti'i 'apai reva</u> | <u>Zanclus canescens</u> |
| 68. <u>Kumukumu</u> , Emperor Angelfishes | <u>Pomacanthodes imperator</u>
(adult) |

The Surgeonfish or Tangs

- | | |
|--|--|
| <p>69. <u>'Api</u>, Surgeonfishes</p> <p>69.1 <u>'Api tako</u></p> <p>69.2 <u>'Api va'a vere</u></p> <p>69.3 <u>'Api taringa auika</u></p> <p>69.4 <u>'Api tuitui</u></p> <p>69.5 <u>'Api renga</u></p> <p>69.6 <u>'Api 'uku tea</u></p> <p>69.7 <u>'Api maka'aka'a</u></p> <p>69.8 <u>'Api pua'au</u></p> <p>70. <u>Parangi</u>, a large Surgeonfish</p> <p>71. <u>Tiovi</u>, Convict Pangs</p> | <p><u>Acanthurus</u>, <u>Ctenochaetus</u>
and <u>Zebrasoma</u> spp.
<u>Ctenochaetus</u> and <u>Acanthurus</u>
spp.; <u>C. striatus</u> et al.
?<u>Ctenochaetus</u> sp,
<u>Ctenochaetus ?striatus</u>
<u>Acanthurus achilles</u>
<u>Acanthurus olivaceus</u> and
<u>A. aliala</u>
<u>Acanthurus ?mata</u>
<u>Acanthurus lineatus</u>
<u>Acanthurus guttatus</u>
?<u>Acanthurus fuliginosus</u>
<u>Acanthurus triostegus</u></p> |
|--|--|

The Unicornfish

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| <p>72. <u>Ume</u>, Unicornfishes</p> <p>72.1 <u>Ume tuitui</u></p> | <p><u>Naso</u> spp., <u>Naso unicornis</u>
<u>Naso lituratus</u></p> |
|--|--|

The Triggerfish and Filefish

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| <p>73. <u>Kokiri</u>, Triggerfishes and
some Filefishes</p> <p>73.1 <u>Kokiri pa'a</u></p> <p>73.2 <u>Kokiri moana</u></p> <p>73.3 <u>Kokiri 'uku tea</u></p> <p>74. <u>Karevareva</u>, Leatherjacket</p> | <p>Spp. of families Balistidae
and Aluteridae.
<u>Rhinecanthus</u> spp.,
<u>Pseudobalistes</u> sp., et al.
<u>Cantherhines dumerili</u>
?<u>Melichthys niger</u>
?<u>Melichthys vidua</u>
?<u>Alutera scripta</u></p> |
|---|---|

The Rabbitfish

- 75. Maemae, Lined Rabbitfish
- 76. Morava, Spotted Rabbitfish

Siganus spinus
Siganus rostratus

The Surmullet

- 77. Ka'uru, red or purplish
Surmullet
- 78. Koama/Vete, Bait Goatfishes
- 79. Takua, Golden-banded
Goatfishes

Spp. of family Mullidae;
Parupeneus trifasciatus,
P. ?bifasciatus et al.
Mulloidichthys samoensis
 ?and M. vanicolensis
Mulloidichthys auriflamma

The Octopus-eating Fish

- 80. Pakevakeva, fish of various
families which eat octopus

Sp. or spp. of families
 Mullidae, Carangidae, and
 ?Balistidae

The Damselfish and Sergeant-majors

- 81. Katoti, a dark Damselfish
- 82. O'u, pale grey Damselfish
- 83. Tapa'uru, Grey-banded
Sergeant-majors

Pomacentrus sp. or spp.
 ?Abudefduf sp. or spp.
Abudefduf sordidus

The Cardinalfishes

- 84. O'o, pale, banded Cardinalfish

?Amia or Lovamia sp.

The Soapfish

- 85. Akapekape, Six-lined Soapfish

Grammistes sexlineatus

The Porcupinefish and Pufferfish

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|---|--|
| 86. <u>Totara</u> , Porcupinefish | <u>Diodon hystrix</u> |
| 87. <u>'Ue'ue taka tai</u> , Pufferfish | <u>Arothron meleagris</u> ,
<u>A. nigropunctatus</u> ,?et al. |

The Boxfishes

- | | |
|-----------------------------|--|
| 88. <u>Moamoa</u> , Boxfish | <u>Ostracion</u> spp.
<u>Ostracion lentiginosum</u> |
| 88.1 <u>Moamoa renga</u> | <u>Ostracion cubicum</u> |

The Flatfishes

- | | |
|---|-------------------------------------|
| 89. <u>Patiki terevare</u> , Left-eye
Flounders, ?and others | Spp. of family Bothidae,
?et al. |
|---|-------------------------------------|

The Lionfishes or Butterfly Cods

- | | |
|------------------------------------|---|
| 90. <u>Tatarai'au</u> , Lionfishes | <u>Pteropterus antennatus</u> ,
<u>Pterois</u> sp. or spp. |
|------------------------------------|---|

The Scorpionfishes and Stingfishes and Their Associates

- | | |
|--|---|
| 91. <u>No'u</u> , Scorpionfishes and
others | Spp. of families
Scorpaenidae and
Synanceiidae, and
<u>Antennarius</u> sp. |
| 91.1 <u>No'u toka</u> | |
| 91.2 <u>No'u one</u> | |

The Lizardfish and Sand Gobies

- | | |
|---|--|
| 92. <u>Karaea</u> , Lizard.fishes and
certain Gobies | <u>Saurida gracilis</u> ,?et al.
Gobiid sp. |
|---|--|

The Blennies

- | | |
|-------------------------------|--------------------------------|
| 93. <u>Panako</u> , Blennies | Spp. of family Blennidae |
| 93.1 <u>Panako ta'areva</u> | <u>Istiblennius ?edentulus</u> |
| 93.2 <u>Panako komotumotu</u> | |
| 93.3 <u>Panako avare</u> | <u>?Istiblennius</u> sp. |
| 93.4 <u>Panako 'akau</u> | <u>Exallias brevis</u> |
| 93.5 <u>Panako urutuki</u> | |

MARGINAL MANGAIKA

The Turtles

- | | |
|---------------------------|-------------------------------|
| 94. <u>'Onu</u> , Turtles | Sp. or spp. of order Chelonia |
|---------------------------|-------------------------------|

The Marine Eels

- | | |
|--|--------------------------------|
| 95. <u>Pu'i</u> , Conger Eels and Spotted Snake-eels | <u>Conger cinereus</u> ?et al. |
| 95.1 <u>Pu'i kotuku</u> | <u>Myrichthys maculosus</u> |
| 96. <u>Kerekere</u> , Moray Eels | Spp. of family Muraenidae |
| 96.1 <u>Kerekere roriki</u> | <u>Gymnothorax meleagris</u> |
| 96.2 <u>Kerekere parakava</u> | <u>Echidna nebulosa</u> |
| 96.3 <u>Kerekere va'atea</u> | <u>?Echidna</u> sp. |
| 96.4 <u>Kerekere va'aroa</u> | <u>Enchelynassa canina</u> |
| 96.5 <u>Kerekere tu'ua</u> | <u>Echidna</u> sp. |
| 96.6 <u>Kerekere pata</u> | <u>Gymnothorax</u> sp. |
| 96.7 <u>Kerekere raraval</u> | |
| 96.8 <u>Kerekere kutekute</u> | <u>Gymnothorax</u> spp. |

The Fresh-water Eels

97. Tuna, Fresh-water Eels

Anguilla spp.

97.1 Tuna itiki

Anguilla obscura

97.2 Tuna kaveu

Anguilla sp.

97.3 Tuna purepure

Anguilla ?megastoma

The Fresh-water Gudgeons

98. Kokopu, Gudgeons

Eleotris sp. or spp.

The Tilapia

99. Tirapia

Tilapia mossambica

CHAPTER 5
FISHING 2: WOMEN'S FISHING,
MARINE INVERTEBRATES AND THEIR TERRESTRIAL
AND AQUATIC RELATIONS.

Some of the smaller lagoon fish are among the creatures sought in tautai va'ine women's fishing. The main techniques of fish-taking used by women are:

- a) Nao or naonao - groping with the hand in rock cavities or beneath stones - for maemae (Rabbitfish, Ch.4-75.), tiovi (Convict Tang, Ch.4-71.), umeume (Unicornfish, Ch.4-72.), karakarau (Rock Cod., Ch.4-28.), pa'oro (Wrasses, Ch.4-47), koama and ka'uru (Goatfish, Ch.4-77. & 78.), etc.
- b) Taka'i - feeling in sand or weed with the feet, then grasping or knifing - for pau'u (A Parrotfish, Ch.4-46.), patiki (Flatfish, Ch.4-89.), pa'o (Sharp-nosed Wrasses, Ch.,4-49.), karaea (Sand Gobies, Ch.4-92.).
- c) Ramarama - torch (pressure-light) fishing using hands and large knife - for miromiro (Half-beaks, Ch.4-7.), and other fish also taken by nao during the day - formerly a strictly female activity.
- d) Pokipoki and e) Papa - slapping, respectively, the flank or the water to produce noise and disturbance which frightens small fish into shallows and dead-end channels - particularly suitable for piriri (juvenile Lined Rabbitfish, Ch.4-75.).

Small fish are considered to be among the best foods obtained by tautai va'ine. In terms of men's fishing, they are relatively low-prestige catches. Though the products of women's fishing are appreciated as adding variety to the diet, none can compare in prestige with the finer fish of the men.

Women may assist in group nettings and in poisoning sessions, and may, themselves, use small scoop-nets. It is, however, unusual and odd for a woman to line-fish. Hand and knife are their chief fishing implements. Women's fishing activities encompass the lagoon and reef ridge. Beyond the reef is a sphere of purely male activity. As implied earlier, it is possible to draw an idealised contrast between:

male	female
ocean	lagoon and reef
large food animals (fish)	small food animals (small fish and invertebrates)
high prestige	low prestige

Possibly, it would be more accurate to talk of tautai va'ine as 'women's sea-food collecting', since it is mainly concerned with the taking of marine invertebrates. (The gathering of edible seaweeds is also part of these activities.) This collecting is considered the simplest form of tautai. Children of both sexes will co-operate in it with older women, or may collect on their own. Echinoderms, molluscs, and crustaceans are the principal objects of the food-gathering. In the absence of any over-arching Manganian categories explicitly inter-relating the various marine invertebrates and their terrestrial and aquatic relatives, my review begins by considering these three groups.

Echinoderms

There is no general term for echinoderms. Mंगाians do not recognise the relatedness of sea-cucumbers, sea-urchins, and sea-stars. These can be said to fall into three independent covert groupings.

The Sea cucumbers - species of the class Holothuroidea, elongated and cylindrical echinoderms, generally flaccid, with leathery body walls.

1. **Rori** - Holothuroidea, most common sea-cucumbers. Six types are distinguished in the terminology.

1.1 Rori tapao (= Sticky rori - a reference to the sticky, white cuvierian tubules which are ejected from the body as part of the animal's defensive response.) also known as **Rori ka'a** or **Rori ngako** (= Rori with edible internal organs). Holothuria leucospilota. This black sea-cucumber, capable of considerable elongation of the body, is common in the lagoon shallows where it often lies half-concealed by rocks. The whole body is not eaten, only the pinkish internal organs (ngako). The outer skin contains holothurin toxin. As noted in the previous chapter (Ch.4-93.), this is sometimes used to poison small fish such as blennies. The rori being rubbed on the rock outside their holes, they emerge in a stunned condition.

1.2 Rori one tea (= Sand rori. The body of this creature is often sand-coated.) Holothuria atra. Though a black/brown sea-cucumber somewhat similar to 1.1, informants readily distinguished rori one tea, pointing to its sand covering, and firmer, less elongated body.

1.3 Rori pu'atoro (Beef rori. The texture of the firm flesh of the body wall was compared to that of tinned beef. I could discover no older, alternative term.) These very firm, brown beche de mer, with small whitish spots on the dorsal surface, are mostly 15 to 20cm. in length. The paler underside is covered with numerous podia. Possibly Actinopygia mauritiana or a Bohadschia sp., rori pu'atoro is commoner on the seaward side of the lagoon.

1.4 Rori pua (Blossom rori — a reference to the flower-like tentacles displayed by the feeding sea-cucumber.) This small, brown beche de mer is found near, or on, the reef and is said to be similar to, though smaller and less firm-fleshed than, rori pu'atoro. The one specimen shown to me appeared to be simply a smaller Individual of the sea-cucumber otherwise identified as 1.3. However, some informants insisted that the true rori pua lives in holes on the reef ridge projecting a blossom-like clump of tentacles. These may well be members of the Dendrochirotid order of sea-cucumbers, which possess dendritic tentacles.

1.5 Ron kanaenae or Kanaenae - Two groups of specimens were identified as kanaenae, those of Holothuria pervicax and

those of an unidentified olive-brown sea-cucumber, probably a Stichopus sp. The latter is commoner, and is eaten by some Mंगाians. Both kanaenae share the feature of fine papillae which protrude from openings in raised warts or lumps on the dorsal surface and which contrast in colour with the general brownish background, being pinkish in H. pervicax and olive-green in the second species. Both are found in shallow depressions on the lagoon floor.

(Two informants stated that the alternative term 'rori ka'a' was applicable to the kanaenae rather than to the rori tapao, 1.1.)

1.6 Purupuru or Rori purupuru (= Gummy rori. This sea-cucumber also throws out the very sticky cuvierian tubules when attacked or irritated.) A small, fairly firm, brown-black sea-cucumber, usually less than 8cm. in length, purupuru resembles a small Holothuria atra (1.2). But informants insisted that it was not the same as rori one tea, lacking a sand covering, and staining the mouth yellow when eaten. Though usually talked of as 'purupuru' rather than as 'rori purupuru', it is considered to be a true rori.

2. **Ngata** - a greyish beche de mer with three rows of nipple-like projections along both sides of the dorsal surface, provisionally identified as Holothuria nobilis. It was suggested that there is a second, darker type of ngata which I did not see. This might be one of the curiously knobbed Stichopus spp.

Ngata are also known as 'te mama o to pu'i', 'the mother of conger eels' (for explanation of the beliefs behind this title see

Ch.4-95.). The supposed relationship between ngata and eels gives rise to a Manganian saying, 'rough mother, smooth baby'.

Ngata are not considered to be true rori though closely resembling them. To Manganian minds, the remarkable shape of the ngata sets them apart from other sea-cucumbers. They are also said to be firmer to the touch than the rori. (This is only partially true. Rori pu'atoro may be equally as firm-bodied.) They are usually taken in the shallow lagoon-floor depressions.

Specimens of Holothuria hilla were also seen. This species is not eaten and was identified simply as a rori. The term 'mokiko' may also refer to a sea-cucumber. It is now used only in certain expressions relating to the state of the sea. The statements 'the mokiko emerge' and 'the mokiko will be seen' imply that the sea is exceptionally low and calm and that the reef is extensively exposed. Opinion as to the identity of the mokiko was not consistent. Suggestions included; a sea-cucumber resembling kanaenae (1.5), reef life generally, and a creature said to be a little like a rori but which burrows in the reef (perhaps a sipunculan, a peanut-worm?). The preparation of sea-cucumbers food will be discussed in Ch.8.

The Sea-urchins - species of the Class Echinoidea, echinoderms with a hard shell, or test, covered with spines.

3. **Kina** - Echinometra mathaei. Two colour forms occur which are differentiated as:

- 3.1 **Kina tea** (= White kina) - a pinkish-white form.

- 3.2 Kina tako** (= Black kina) - a blackish-brown form. These are small, burrowing urchins. Though their excavations are particularly common in the rocks of the mid-lagoon, informants maintained that kina tako, the darker urchins, were commoner on the reef.
4. **Vana** (Sticking-up, as of spines.) Probably Tripneustes sp. This larger urchin, sometimes exceeding 8cm. across the test, has fine, short spines, varying in colour from off-white to pale purple-brown. It frequently carries small pieces of weed and other debris on its upper surface.
5. **Kina vana** - Long-spined urchins, principally Echinothrix ?diadema but also Diadema spp. The sharp, poisonous spines of the kina vana are one of the familiar hazards of the lagoon. The traditional method of removing the spines, when the urchins were taken for food, was to strike the creatures repeatedly with the nut-bearing stem of a coconut palm, from which the nuts have fallen. Kina vana are common between mid-lagoon and reef.
- Some informants did not use the composite term 'kina vana' but applied ' to all larger urchins other than...
6. **Atuke or Atuki** – Slate-pencil Urchins, Heterocentrotus trigonarius and, probably, Heterocentrotus mammilatus. These are distinguished by thick-walled tests and heavy, blunt spines. Mainly gathered from the reef ridge, they are sometimes taken by divers from the outer reef face.

Though there is no covering term for all urchins, their relatedness is fully recognised. The flesh (kiko) of kina, kina vana, vana and atuke is said to be very similar.

The Starfish and Brittle Stars - species of the class Stelleroidea, star-shaped echinoderms. No members of this class are eaten, and Manganian knowledge of them is scant. Only two terms referring specifically to sea-stars were recorded.

7. **Ma'ama'a tai** (?= Bitter one of the sea). The term 'ma'ama'a tai' seems to be passing out of use. The English term 'starfish' is familiar to, and used by, many Mangaians of middle age or less. The precise referent of 'ma'ama'a tai' was difficult to establish. It was certainly applied to the large blue starfish Linckia laevigata. However, some held that it could be applied more generally to other smaller lagoon starfish and, possibly, to brittle stars. Though vaguely aware that several different types of these existed, informants were not sufficiently familiar with them to offer any clear set of descriptions. Several dismissed the brittle stars as 'veri', a terms used as a catch-all for unattractive invertebrates (see veri kakao below, 60.).
8. **Taramea** (=Spiny thing). Crown of Thorns Starfish, Acanthaster planci. This starfish was not present in large numbers during my fieldwork period, and does not seem to have posed any threat to the Manganian reef. But government information and news reports had alerted Mangaians to the damage that its coral-

eating habits had done elsewhere. Taramea were disliked and often killed. Their poisonous spines, which can inflict very unpleasant foot wounds, also contribute to their unpopularity. It is part of local knowledge that taramea are eaten by the large shellfish pu, Charonia tnitonis (below, 16.). It is said that a period in which many taramea appear will be followed by a period with a large number of pu.

Molluscs

Mangaian recognise the relatedness of the many species of shellfish common around their shores and also acknowledge affinities with some sea-slugs and terrestrial and aquatic gastropods. However, there is no term which is applied to these groups collectively. The cephalopods, octopus and squid, are not seen as closely related to other molluscs, falling within their own category 'eke'. Conversational usage sometimes implied the inclusion of 'eke' within the fish category 'mangaika'. But more formal questioning rarely supported this, the responses suggesting that 'eke' should be regarded as an independent (or unaffiliated) category.

I will present Mangaian mollusc categories in four groups - a shellfish group, a sea-slug and sea-hare group, a land and fresh-water snail and slug group, and the cephalopods. This does reflect, to a large degree, the way in which informants grouped these creatures in their own listings. But, since the broader Mangaian organisation of their mollusc categories is largely covert and many different degrees of resemblance are recognised, it is not easy to maintain that any set

grouping fully reflects Manganian conceptions. The texts of individual entries will provide more information on perceived resemblances.

The Shelled Marine Gastropods and Bivalves - a covert grouping of shellfish of the classes Gastropoda and Bivalvia.

9. **Mapi'i** - Star Limpet, Patella flexuosa flexuosa, a limpet with low apex and strongly sculpted with radial ridges giving a jagged shell margin. It is collected from the reef ridge.
10. **Mama** - Cap Limpet, Patelloida conoidalis, a small limpet with high, conical shell lacking clear radial ribbing. It is collected from shoreline rocks.

Mapi'i and mama are considered very similar. In description, they are usually contrasted in terms of their location - reef v. shore rock. Both may be eaten, and their firm flesh is thought highly suitable as bait for small fish, being difficult to remove from the hook.

11. **Ariri** - Large Turban Shells, Turbo spp., principally Turbo setosus and Turbo argyrostomus. A single specimen of the finely-coloured ariri, Turbo petholatus, was seen, used as a household ornament. Some informants recognised that there were two common ariri types.

11.1 **Ariri 'akau** (= Reef ariri) was said to have tara, 'spines', on its shell. Sharp irregularities are a feature of the shell of T. argyrostomus.

12. **Karikao** - a conical Turban Shell of moderate size, Astraea rhodostoma. The hardness of the shell is proverbial (see Appendix 4). Like the ariri (11.), it is closed with a 'cat's-eye' operculum (tupe). The large Top Shell, Trochus niloticus, is not found in Manganian waters but is present around other S. Cook Islands. It is familiar to Manganians as a decorative shell, and is also known as 'karikao'.
It shares with A. rhodostoma a strongly conical shape.
13. **I'i** - Nerites, Nerita plicata and Nerita polita, found on littoral rocks. The commoner Nerita plicata, is among the most easily obtained of all animal foods and is a popular snack for children foraging along the shore. It was recognised that there were two types of their moderately small, rounded shells, varying in colour, surface texture, and hardness. The shell of N. polita is more difficult to break in order to extract the animal.
14. **Avare oronga** (= Like the slime of the orongu tree. According to this interpretation, the body slime of the mollusc is compared to the slippery sap beneath the bark of the tree Pipturus velutinus.) Spiny Periwinkle, Echininus cumingii, a moderately small shellfish (the shell up to 25mm. long) found on littoral rocks. The shell is sculpted with spines. Avare oronga is considered similar to i'i (13.) and is known colloquially, and to children, as 'i'i taratara' (= Spiny i'i).

15. **Roaroa** (= Long). The term 'roaroa' is applied to molluscs of more than one family, having elongated, spiral shells. The eaten roaroa are members of the Auger Shell family, Terebridae, Terebra crenulata and one other Terebra sp. were collected. These are found in sandy pockets within the lagoon shallows. Some smaller roaroa are used for decorative purposes in shell strings, particularly the small Horn Shells, Rhinoclavis sinensis and Rhinoclavis asper (Cerithiidae). These shells are collected from the lagoon shallows or shoreline. Often they are occupied by small hermit crabs. The large, thick-shelled Cerithium nodulosum was also, tentatively, identified as a roaroa.
16. **Pu** - The true pu is the Triton Shellfish, Charonia tritonis. Growing up to 45cm. in length, it is the largest gastropod known to the Mंगाians. The flesh is not eaten, but the shell was, in earlier times, used as a trumpet. ('Akatangi pu = Sound the trumpet. A particular pu trumpet was a major symbol of the god Rongo, see Ch.10.) Pu are still occasionally taken for their impressive and decorative shell by men diving on the reef slope.
- The large Spider Strombs, Lambis truncata sebae and Lambis chiragra chiragra, are also termed 'pu'. The horn-like projections from the lips of the shells give them a very distinctive shape, quite unlike that of the Triton Shells. Common to both is their large size and habitat on the reef slope. The Spider Stromb are also sometimes used as household ornaments. Mंगाians acknowledge two pu types.

The small Triton Shell, Cymatium nicobaricum, was also identified as a pu by some informants. It is similar in form to Charonia tritonis.

17. **Poreo** - the Cowries and False Cowries, species of the families Cypraeidae and Ovulidae, with oval or pear-shaped shells, most highly enamelled, and many of which are used for decoration. The small, white Money Cowry, Monetaria moneta, is used in necklaces. Found around rocks in lagoon-floor hollows, this is the only cowry that I saw live within the lagoon. However, dead shells indicate the presence of many other species - e.g. Cypraea maculifera, C. isabella, C. schilderorum and C. caputserpentis.

A few shells of the Tiger Cowry, Cypraea tigris, were seen, kept as domestic ornaments, as were some shells of the brilliant white ovulid Ovula ovum. Gill (1890a:337) records that O. ovum was, in the pre-Christian period, much prized as a dance ornament for warriors.

Though the various poreo may be differentiated by description, there is no fixed terminology for distinct poreo types.

18. **Mangeongo** (= Stinging, peppery, or tangy. This relates to the taste of the edible mangeongo.) The principal eaten species is the muricid rock snail Drupa morum, though the smaller Drupa ricina is also collected. Both these species, found on the reef ridge, have shells sculpted with prominent nodules. Other shellfish identified as types of mangeongo had similarly nodulose shells - Morula uva, Morula granulata, Thais armigera.

These were recognised as distinct from the 'true mangeongoe' the Drupa spp., and were not eaten.

19. **Matakura** (= Red eye, a reference to the pinkish-purple aperture of the shell.) Coralliophila violacea. Possibly, this should be considered a sub-category of 18., since I have also heard this shellfish termed 'mangeongoe matakura'. But, the more general understanding seems to be that the mangeongoe are distinct but closely related. The shell of C. violacea is a compact spiral which, growing to some 3 to 4cm. in length, is similar in size to Drupa morum. But it is not nodulose. Like mangeongoe the matakura are gathered for food from the reef ridge.
20. **Mapara** - a moderately small shellfish of the reef ridge, Thais or Morula sp. The shell is a brownish, slightly nodulose spiral with brown and white aperture (similar to Thais intermedia). It is taken for food.

Mangeongoe, Matakura and Mapara can reasonably be considered to form a small, covert grouping. The latter two were described as 'of the family of the mangeongoe'.

21. **Popoto** (Possibly formed from 'poto' = 'short', referring to the short spire of the shells.) Cone Shells, Conus spp. All Conus spp. collected were identified as popoto. Those common in the lagoon include: Conus ebraeus, C. chaldaeus, C. lividus, C. catus, and C. sanguinolentus. Informants explained that the popoto taken for eating were 'the brown ones' which grew

bigger than the other types. C. lividus and C. sanguinolentus were indicated.

22. **Pa'ua** - Clams, species of family Tridacnidae, and Chama sp. These are the most prized of eaten bivalves. Two pa'ua types are distinguished in the terminology.

22.1 **Pa'ua vava'i** (?= Split pa'ua) or **Pa'ua vava'a vaevae** - Clams, Tridacna spp. Tridacna maxima and T. crocea are both common. Smaller clams embed themselves in the lagoon floor. Their collection is termed 'pana pa'ua', 'prising-up pa'ua'. They are levered-out with knives or pieces of iron. Men diving on the outer reef slope may take some larger T. maxima.

22.2 **Pa'ua kute** (= Brown pa'ua) or **Pa'ua o kura** (= Reddish pa'ua), Chama ? pacifica. One valve of the shell is, invariably, cemented to the lagoon floor or coral rock. Whereas, with the clams the valves are held in the vertical plane, pa'ua kute lie on one side. It is often necessary to break the upper valve to reach the flesh. The thick, flattened shell, white with a reddish-brown outer (dorsal) margin, is quite unlike the heavily folded and sculpted shells of the clams.

Informants were very well aware of the very considerable differences between the two pa'ua types. Many were rather at a loss when asked to explain why both should be known by the same term. However, commonly suggested similarities were: a) taste and texture of flesh; b) solid attachment to rock.

23. **Parau** - principally, Mother of Pearl Shells, e.g., Pinctada sp., which are now imported in small numbers from the Northern Group of the Cooks, where they are common. They are still, occasionally, used in making fish hook lures. Such shells do occur in Manganian ornaments collected in the nineteenth century (Buck, 1944:121). Whether some of these shells were once taken locally, or whether these are early imports, is not clear.

A number of small, local shells with pearly interiors were identified as parau or 'like parau'. These included Isognomon perna and Isognomon ?legumen.

The application of the next three category terms, 'ka'i', 'tunani', and 'pipi', varied considerably from informant to informant.

24. **Ka'i** (= Knife. The shells were formerly used as cutting tools.)
The shellfish most frequently and consistently identified as ka'i was the moderately large, ovate Asaphis violescens, found in the sandier, shoreward areas of the lagoon. However, some informants applied the term 'ka'i' to a number of other bivalves, varying in shape, shell texture, and markings. These included: Codakia spp., Quidnipagus palatam, Periglypta reticulata and Scutarcopagia scobinata.
25. **Tunani** - This term is also applied to the species listed under ka'i (24.), with the possible exception of the 'true ka'i', Asaphis violescens. A few informants suggested that there was a 'true tunani' with an elongated, straight-sided shell. However, no specimens of this 'true tunani' were found.

26. **Pipi** - A term applied as 'tunani' (25.) by some informants.

Possibly, 'pipi' is not part of the original Manganian vocabulary, but a Rarotongan equivalent to 'tunani'.

The confusion of ka'i, tunani and pipi is probably a reflection of the scarcity of sand-living bivalves in the area of Oneroa village, where most of my information was gathered. There are few large sandy areas within that sector of the lagoon. Though they are considered fair eating, these shellfish do not occur in large enough numbers to be worth concerted collecting, and are seldom taken alive. The smaller bivalve shells washed up on the shore are used in some 'ei pupu, shell strings or necklaces. Nonetheless, these species are considerably less familiar than the principal eaten bivalves.

27. **Kakuku** or **Kuku** (Possibly related to 'maikuku' = fingernail or claw.) Mussel, Modiolus auriculatus. This mussel is another sand or mud-dwelling species relatively scarce around Oneroa. Again, it is considered edible but is now rarely taken.

Despite some uncertainty of identification, I am inclined to include among the marine molluscs:

28. **Ungakoa** - The missionary writer W.W. Gill (1880:115) identified the ungakoa as a Fan Worm, a serpulid, one of the marine polychaete annelids which inhabits hard, calcareous tubes attached to shells or rocks. In this identification he was partially correct. But many of the larger shell-tubes identified as those of ungakoa clearly belong to Worm Shell animals, vermetid molluscs (Gastropoda: Vermetidae), the tubes of which closely

resemble those of the serpulids. These tubes are one of the recognised dangers of the lagoon and reef, the sharp, hard edges of the shell opening being capable of inflicting painful foot wounds.

Those ungakoa with shells cemented to the rock surface are not eaten. A few informants referred to such lesser ungakoa as 'kana', a term more usually applied to rough coralline rock. The eaten ungakoa live in shell-lined tubes within the coral rock of the reef. The tubes do not project above the entrance which may be up to 2cm. in diameter. To extract the animal a sharp instrument is jabbed into the operculum or pallet, which blocks the top of the tube, before it can be completely retracted. The flesh, or at least part of it, is then levered out.

The fragmentary specimens I saw were apparently molluscan. It seems likely that the edible ungakoa is one of the larger vermetid gastropods. Mंगाians recognise some similarity of the flesh to other shellfish but did not firmly compare the ungakoa to any other species. One described the ungakoa as 'a kind of flesh that is in the rocks'.

Clearly, the terminology recorded here covers only a small proportion of the shellfish fauna (in excess of 600 species have been collected from the one island of Raroia in the Tuamotus). Small Strombus spp. and Cerithium spp.; Mitre Shells, Mitra spp.; Arks, Arca spp.; File Shells, Lima sp.; Moon Snails, Polinices sp., and many others were not firmly identified by any Mंगाian term. However, comparisons were drawn - Arca ?avellana was said to be similar to the mussel kakuku (27.), a Lima sp. was compared to the other bivalves tunani or pipi (25. and 26.), etc. As in other areas, my Mंगाian

informants recognised the limitations of their shellfish terminology, admitting that many they knew had no 'name' ('ingoa'). But it was also explicitly pointed out that the terminology did cover all types of shellfish which are considered important or useful (puapinga) as food or for their decorative shells.

The Sea-slugs and Sea-hares - a covert grouping of species of the subclass Opisthobranchia, marine gastropods with shells absent or vastly reduced. Three Manganian terms evidently refer to opisthobranchs. All three types are said to be scarce in Mangaia's lagoon, though one, patito sometimes appears in large numbers. No specimens were seen.

29. **Patito** or **Patito tai** (= Sea patito). Described as grey or bluish in colour and of small size (up to about 8cm. in length), patito tai is said to be similar in body form to terrestrial slugs and snails.

30. **Ngau** - Descriptions strongly suggest a sea-hare (order Anaspidae). The aplysiid sea-hare Stylocheilus longicauda has been recorded in the Southern Cooks (Gibbs, Vevers, and Stoddart, 1975).

31. **Tuatai** - Greyish-brown with an opening in the middle of the dorsal surface, tuatai is probably a true sea-slug (order Nudibranchia). A specimen of the brilliant-red nudibranch Hexabranchus ?marginalis, was said to be similar to a tuatai.

This visually very striking species, which I caught in the lagoon, was surprisingly unfamiliar to all those asked to identify it.

Patito, ngau and tuatai may all be eaten and are legitimate objects of tautai va'ine, women's fishing. They are considered closely related.

Terrestrial and Fresh-water Gastropods, Snails, Slugs, and Their Associates - a covert grouping of species of subclass Pulmonata with some species of superfamily Neritacea (subclass Prosobranchia).

32. **Pupu** (Probably a diminutive of 'pu' see 16.). The term 'pupu' may be applied to many different kinds of smaller molluscan shells used decoratively, including those of marine species. A string of shells incorporating those of roaroa (15.) and poreo (17.) can still be talked of as an 'ei pupu', a 'pupu necklace'. But the 'true' pupu are certain small snails which are collected and threaded into strings in their millions. (This is not an exaggeration. The 'ei' I received as parting gifts were made up from more than 30,000 individual shells.) Two types are distinguished:

32.1 **Pupu renga** (= Yellow pupu). The snail Helicina flavesceus. This is collected in vast numbers for its delicate, yellow shell. Most are taken by women and children from the makatea plateau, where they are usually found on the soil surface beneath rocks and debris.

32.2 Pupu tako (= Black pupu). The fresh-water living Theodoxus chlorostoma. These are scarcer and more sparingly used. At Oneroa they are gathered around the mouth of a shoreline spring.

Other terrestrial snails, e.g. the rounded Bradybaena similiaris and the elongate Sublina octona, were also identified as 'some kind of pupu' though their fragile, dully-coloured shells were not used.

33. Roro'ara or, more rarely, **Pupu roro'ara** (These shells are often to be found-around the roots of the pandanus tree, 'ara.) A small, white, air-breathing Ear Shell, Melampus flavus form luteus. This species is found only on the coastal strip, often in leaf debris or, at night, on the strand. Its shell is much used in 'ei pupu.

34. Patito 'enua (= Land patito). An unidentified slug, possibly an introduced species of family Limacidae. Some informants also applied the term 'patito' to larger land snails, such as Bradybaena similiaris, while others insisted that the only true patito were marine (see 29.).

35. Ngau - Large, ovate slugs (Order Soleolifera, probably family Veronicellidae.)

As the parallels in the terminology suggest, affinities are recognised between this group and the previous two groups of molluscs.

The Octopus and Squid - a category of molluscs of the class Cephalopoda, bearing tentacles around the head, the foot represented by a siphon.

Few cephalopod specimens were seen, and no detailed zoological identifications can be offered. However, the following types are distinguished by Manganians:

36. **'Eke** – Cephalopods

36.1 'Eke maori (= Indigenous/common 'eke). A small, pale Octopus sp., found on the reef ridge.

36.2 'Eke tapairu ('tapairu = a beautiful woman. It was tentatively suggested that the long tentacles of this octopus could be compared to the long hair of a woman. The term 'kakave' is applied both to the tentacles of cephalopods and to locks of hair.) probably identical with **'Eke tapa'i** (= Cleaving /attacking 'eke). This is a very large and potentially dangerous octopus found on the ocean side of the reef. Gill (translates 'eke tapairu' as 'divine cuttlefish' (in myth, the original tapairu were supernatural beings) and describes them as the objects of fear and superstition.

36.3 'Eke taevao (= Wild 'eke), an octopus with long tentacles living in holes both on the reef face and in the lagoon.

36.4 'Eke purenu, probably the same as Piri veri (= Close to the veri. For discussion of veri see below, 60.), a cephalopod with very short tentacles.

36.5 Mu'eke - Said to have elongated 'heads', the mu'eke are probably squid.

36.6 'Eke korokoroa or Korokoroa - These are very small cephalopods occasionally seen in large numbers in the open sea.

Buck (1944:214-5) recorded five Manganian octopus types: 'eke taevao, 'eke tapairu, 'eke para'i - an octopus without a hole, wandering freely, 'eke tau'ani - an octopus always found in male and female pairs, and 'eke paepae - an octopus which always erects a barrier of stones outside its hole. The last three category terms are not now in general use. My informants with wider fishing experience did acknowledge that 'eke tau'ani referred to octopus found in pairs. But it was not clear whether this was a particular type of octopus, or simply those of any type behaving in a particular way.

The present lack of detailed knowledge of octopus types and their behaviour may be connected with the decline and disappearance of specialist octopus-diving performed by men. Even writing in 1944, Buck was recording discontinued techniques of octopus catching. Women continue to collect the smaller types of octopus found on the reef ('eke maori, piri veri) as part of tautai va'ine. Spear-divers will take any octopus readily offers itself and smaller individuals may be extracted from their holes in the coral rocks of the lagoon. But there is no longer organised deep-water octopus fishing.

Besides their use as food, octopus are valued by fishermen as bait. They provide not only flesh from their tentacles but also their ink sac. The contents of this, mixed with grated candlenut, makes a bait known as 'urua', used in catching surgeonfish ('api, Ch.4-69,).

Crustaceans

The Mंगाians recognise some general affinities between all larger crustaceans. However, they divide them into three major groups: karai'i - mainly true crabs, unga - hermit crabs and coconut crabs, and koura - lobsters, shrimps and prawns. While some held that the hermit crabs, unga, could be seen as a sub section of the wider crab category others felt 'unga' and 'karai'i' to be in contrast, referring to independent, though related, groups. Here, they will be treated as independent categories.

The True Crabs - Karai'i - a category mainly comprising species of the section Brachyura.

Crabs which occupy the same ecological zone are often spoken of together. For convenience, and following informants' presentations, they may be considered to fall into four divisions - crabs of the reef, crabs of the lagoon, crabs of the foreshore, and land crabs.

Reef Crabs

37. **Upaki** - Carpilius convexus and Carpilius maculatus, large crabs with characteristically domed carapaces. The two species are completely different in colouring, one largely red, the other basically grey and spotted, and are recognised as two distinct upaki types.
38. **Tiko'uru** (= Hairy one), crabs with hair-like fringes on the walking legs. The term 'tiko'uru' was applied to two rather similar xanthid crabs, Xanthias tetraodon and Etisus ?splendidus. All tiko'uru are reputed to have very poisonous flesh (see Ch.8).
39. **Ti'oro** (= Hurrier - a reference to the rapidity of the crab's movements). Charybdis (Goniosupradens) erythrodactyla and some other swimming crabs, species of the family Portunidae. A distinguishing feature of all ti'oro is said to be their flattened rear legs, the swimming legs of the portunids.
40. **Tuapuku** (= Bumpy back. The carapace has a lumpy surface.) Plagusia ?depressa tuberculata, a moderately small, purple-brown crab. (Width of carapace app. 35mm.. Leg spread app. 11.5cm.) The under-surface is covered by a pattern of grooves.
41. **Moka** (? = Bare/unadorned). Plagusia depressa tuberculata. Moka is very similar in appearance to tuapuku though rather darker in colour, a reddish-brown, and always slightly larger. It seems possible that, though moka lacks the fold-like grooves on the ventral surface characteristic of tuapuku, they may be

different life-stages of the same crab species. Manganian informants saw them as distinct but closely related types. They were sometimes spoken of, together, as 'papaka 'akau', 'papaka of the reef' (for papaka see below 47.).

42. **Toetoe** - Percnon planissimum ?and others. The legs of P. planissimum have prominent spines on their forward edges. This was said to be a feature of all toetoe which, despite their small pincers, must be handled with care.

Lagoon Crabs

43. **Angatea** (= White shell). The literal interpretation of 'angatea' is a little misleading since some insisted that there are two colour forms, angatea tea - white, and angatea kura - red. I only saw the second of these, the xanthid crab Zoerymus aeneus. This species is found on the seaward side of the lagoon near the reef ridge, or on the reef itself. Its flesh is reputed to be poisonous at certain times (see Ch.8).
44. **Ku'ani'ani** - Daira perlata, a medium-sized brown crab found in the hollows and around the coral heads of the mid-lagoon.
45. **Tungerengere** (Said to be derived from 'ngere' = lack or poverty. This is the kind of easily available crab that a fisherman might pick up when he has failed to catch any fish.) Atergatis floridus a grey xanthid crab of mid-lagoon.

Shore Crabs

46. **Titirotai** (= Watcher over the sea). Ghost Crabs (Ocypodidae), specimens taken were of Ocypode ?laevis. Informants knew the titorotai to be burrowing crabs living in sand. These ghost crabs are usually taken at night, when they emerge from their burrows.
47. **Mikia** - Grapsus ?albolineatus/?tenuicrustatus, a dark red and orange-brown crab of the beach rocks extensively marked in white. Informants noted that the mikia has legs which are, in proportion to its body size, longer than those of any other sea or shore crab.
48. **Tumatumavai** (?= Plentiful fresh water. The true tumatumavai are said to favour the shoreline rock pools near fresh water springs.) Metepograpsus ?thukuhar, all specimens of which were, in fact, collected from a length of rocky shoreline near a spring. The term 'tumatumavai' was less certainly applied to other small, brown crabs of the shore rocks, not zoologically identified.
49. **Papaka** - Pachygrapsus sp., moderately large, grey crabs of the higher coastal rocks which sometimes venture further onto the coastal strip. In the Rarotongan dialect of Cook Islands Maori 'papaka' is the general term for all true crabs.

Land Crabs

50. **Karai'i** - Though in Mangaia all true crabs may be referred to as 'karai'i', one 'true karai'i' is recognised, a small, dark brown or purple-brown grapsid crab, ?Cyclograpsus sp. Very common on the coastal strip (in Oneroa village they often live in crevices in concrete house foundations), karai'i are also to be seen on the seaward side of the makatea plateau. Their external structure is very similar to that of papaka (49.) to which they are thought to be closely related.
51. **Tupa** - Burrowing land crabs, Cardisoma rotundum ?and others. Tupa numbers are said to have declined greatly in the last twenty years. Only one specimen of C. rotundum was taken. Some informants believed that there were two tupa types, one of which was formerly found in the interior, in the area of the lakes and swamps.
52. **Irave** - Cardisoma longipes. A dark brown crab of the rocky makatea, irave is noted for its very long legs. This feature lead some to compare it to mikia (47.), similarly long-legged, rather than to the tupa (51.) which it resembles on many other points of structure.

Three additional category terms were recorded:

- Tupa rata** - Descriptions of this crab varied so greatly that I am not even certain whether it is found on the reef or on land.

- Raumi'i** - This term was recorded from Tamarua village alone. It is apparently a local equivalent of 'upaki' (37.).
- Koki** - This is said to be the Ivirua village equivalent of the Rarotongan 'koiti' and the Oneroa village 'titirotai' (46.).

Remaining true crabs (eg. Calappa hepatica, Lydia sp.) and porcelain crabs (Porcellanidae, ?Petrolisthes sp.) were identified simply as karai'i in the broader use of this term.

Hermit Crabs and Coconut Crabs - Unga - a category comprising crabs of the section Anomura, superfamilies Coenobitoidea and Paguridea. Most live in mollusc shells which are used to protect a soft abdomen not covered by the carapace.

53. **Unga** - species of superfamilies Coenobitoidea and Paguridea. The majority of hermit crabs are referred to solely by the three interconnected terms 'unga', 'ungaunga' and 'kakara'. Some informants regarded 'ungaunga' and 'kakara' as equivalents, both referring to all small unga. For others, the three terms could be arranged in size sequence:

Small		Large
<u>ungaunga</u>	<u>kakara</u>	<u>unga</u>
or		
<u>kakara</u>	<u>ungaunga</u>	<u>unga</u>
(There were many divergences of opinion.)		

This was sometimes presented as a true developmental

sequence. However, it was widely recognised that not all kakara or ungaunga would grow up to be unga.

In the identification of specimens the term 'unga' was generally applied to all small marine hermit crabs (Paguridea, e.g. Calcinus spp., all less than about 7cm. in extended length, claw tip to rear of soft body). 'Kakara' was also applied very generally, but was sometimes specified as a small, white hermit crab (not zoologically identified) which wanders the coastal strip. The smaller hermit crabs are taken as fishing baits.

Three larger types of unga are those principally sought as human food.

53.1 Ungapara (= Soft unga. The crab is much esteemed for its rich, oily, soft body.) Dardanus sp. Found mainly on the reef ridge, living in the shells of ariri, Turbo spp. (11.), they are readily distinguished from other unga by their brilliant red, orange, and brown colouring which covers the entire body surface, and by their bristle-covered legs ('uru'uru te vaevae - 'the legs are hairy').

53.2 Unga kura (= Red unga). A dark red-brown Coenobita sp. also living in the shells of ariri (11.). They inhabit the coastal strip and makatea.

53.3 Unga puku'ara (= Bole of pandanus tree unga. The term 'puku'ara' suggests something thick and strong.) The Coconut or Robber Crab, Birgus latro. This crab is the largest of Mangaia's native ground-living animals, its massive claws reputedly capable of nearly severing a human finger. It rapidly

outgrows mollusc shells and abandons their protection. Adults carry the abdomen flexed beneath them. These adults construct burrows on the makatea, in which they will spend several months of the year during the annual moult and the hardening of their new carapaces. Informants claimed that, by the time of their emergence for spawning in October or November, each unga puku'ara would have created a network of five to six underground chambers.

The Lobsters, Shrimps, and Prawns - Koura - a category of crustaceans with moderately elongated bodies, mainly of sections Caridea and Macrura. Strong affinities are recognised between marine and fresh-water species, though an explicit distinction is often drawn between koura tai, 'sea koura' and koura vai, 'fresh-water koura'

Sea koura - Koura tai

54. **Koura (tai)** - The typical koura are Spiny Lobsters, Panulirus ?pascuensis and a second Panulirus sp. (brown and orange in colouring, similar to P. penicillatus). The specimens obtained had been speared or captured by hand by men diving on the reef face. However, at night lobsters may be taken within the lagoon.

Snapping Shrimps, Alpheus sp., were confidently identified as a kind of small koura, while the Banded Shrimp, Stenopus species, and a stomatopod shrimp, Gonodactylus sp., were described as 'like koura'. Marine shrimps are not eaten.

55. **Papapapa** or **Koura papa** (= Flattened or flat koura). Spanish Lobsters, Ibacus sp. These lobsters have a flattish carapace which almost completely covers the legs and lack the long antennae (vero) which are characteristic of the spiny lobsters and other koura. Papapapa quite often become entangled in sleeping nets.

Fresh-water koura - **Koura vai**

56. **Koura vai** - Long-armed Shrimps (prawns), Macrobrachium sp. The commonest of the larger fresh-water crustaceans, the true koura vai are found in the streams and lakes of the ring of taro swamp and around the mouths of coastal springs. A development sequence was proposed:

koura vai $\longrightarrow$ tiaka

The larger, darker tiaka have greatly elongated claw arms and appear to be males of the Macrobrachium sp.

Three other types of fresh-water koura were reported. I saw no specimens of these.

57. **'Ea'ea** - These are described as very similar to the true koura vai (56.), though much smaller (6cm. or less in length) and almost white rather than the pinkish-brown of the Macrobrachium sp. They are said to favour lakes rather than streams and were formerly taken in large numbers from Lake Tiriara, in the Veitatei district.

58. **Papapapa** - Said to be the smallest of the fresh-water koura they are reported to have flattened carapaces similar to those of the marine papapapa (55.). Probably they are not true shrimp. Papapapa are found beneath rocks in certain inland streams and are claimed to favour turbulent water. They may be gathered for eating when found in sufficient numbers.
59. **Rapa nui** (?= Claw displayer). The descriptions given are of a moderately large, yellowish crustacean (similar in size to the larger Macrobrachium sp., body length 13cm. or over) with one claw enlarged and laterally flattened. Rapa nui are reported to be found only in the upper courses of streams. They sound very like fresh-water crayfish, though no crayfish have been recorded in the Cook Islands.

Marine Invertebrates of Minor Importance

In the course of true fishing and sea-food collecting Manganians have observed and noted creatures of other invertebrate groups. The terminology covering this portion of the animal kingdom is not highly developed, but some terms are reserved to - a) certain marine worms, b) jellyfish, while the term 'veri' is loosely applied to a number of different organisms.

60. **Veri kakao** (Veri - a term applied primarily to myriapods, see Ch.7-25. Kakao or kaka'o = a reed-like plant. Possibly, the original implication was that the white, hair-like setae of the

worm resemble the white heads of the plant.) Bristleworms, polychaete annelids with bodies edged with hollow setae containing a poison, Eurythoe complanata ?and others. The setae will penetrate the human skin and, breaking off the worm, cause a painful inflammation. The veri kakao often lie concealed beneath lagoon rocks and are another of the minor hazards facing sea-food collectors.

In the case of the bristleworms there is a genuine recognition of a superficial resemblance to the true veri, the centipede. The worms are clearly segmented with bunches of setae protruding from the sides of the flattened segments in a manner reminiscent of the legs of a centipede. Both centipede and bristleworm have poison. Yet, informants recognised that there were considerable differences in structure and acknowledged that the relationship of the two was distant.

61. **Veri moana** (= Veri of the ocean). No specimens of this creature were seen, but descriptions strong suggest another polychaete annelid, probably a worm of the family Nereidae (five species have been recorded in the Southern Cooks; Gibbs, Ververs, and Stoddart, 1975). Veri moana is considered rather more similar to the true veri, centipedes, than is the veri kakao (60.). Gill (1876b:274) gives the Manganian term 'a'e' (which I did not record) for a 'sea centipede' 5 or six feet in length, which he identifies as a Nereis sp. This is probably the animal now known as 'veri moana'.

The term 'veri' is, in fact, applied to a variety of creatures which are not really considered to resemble the myriapods - to coral animals

and sea-anemones (Anthozoans), to medusa and medusoid jellyfish (Scyphozoans ?and Hydrozoans). It is used as a catch-all for invertebrates not otherwise identifiable, especially those with numerous legs, tentacles, or other appendages. It carries a hint of distrust and even disgust for this rag-bag of lesser animals which cannot be clearly related to the other more important animal groupings. It is interesting to note that some Seventh Day Adventists use the term 'veri' in relation to octopus and sea-cucumber, which they regard as inedible abominations, in accordance with Leviticus.

62. **Tutae to'ora** (= Whale dung. This is not taken too literally.)
 A hydrozoan 'jellyfish'. Though I saw no complete specimen, I was shown air-sacs said to come from the tutae to'ora.
 These were clearly floats from a member of the order Siphonophora, probably from the Indo-Pacific Man-of-War, Physalia utriculus. Tutae to'ora are reported to have a very painful sting, as would be expected from a man-of-war.

Since corals are generally regarded as rocks (ko'atu), the terminology connected with them will not be presented here. While it is true that when I pointed out to certain informants the more mobile of coral animals they spoke of these as 'veri', what awareness there is of the role of such animals in the production of coral structures seems to stem entirely from school natural history teaching.

The Collection of Invertebrates

The edible invertebrates taken in tautai va'ine women's fishing, may now be summarised as follows:

Sea-cucumbers:	Rori tapao (1.1), <u>rori one tea</u> (1.2), rori <u>pu'atoro</u> (1.3), <u>rori pua</u> (1.4), <u>kanaenae</u> (1.5), <u>purupuru</u> (1.6), <u>ngata</u> (2.)
Sea-urchins:	<u>Kina</u> (3.), <u>vana</u> (4.), <u>kina vana</u> (5.), <u>atuke</u> (6.)
Shellfish:	Limpets, <u>mapi'i</u> (9.), <u>mama</u> (10.); Turban Shells, <u>ariri</u> (11.), <u>karikao</u> (12.); Nerites, <u>i'i</u> (13.); Spiny Periwinkle, <u>avare oronga</u> (14.); Auger Shells, <u>roaroa</u> (15.); Muricids, <u>mangeongo</u> (18.), <u>mapara</u> (20.); a Coral Shell, <u>matakura</u> (19.); larger Cone Shells, <u>popoto</u> (21.); Clams, Mussels, and a variety of other bivalves, <u>pa'ua</u> (22.), <u>kakuku</u> (27.), <u>ka'i</u> (24.), <u>tunani</u> (25.), <u>pipi</u> (26.); some Worm Shells, <u>ungakoa</u> (28.).
Sea-slugs and Sea Hares	<u>Patito tai</u> (29.), <u>ngau</u> (30.), <u>tuatai</u> (31.).
Cephalopods	Smaller lagoon and reef octopus, <u>'eke</u> (36.)
Crustaceans	All larger reef and lagoon crabs (37.-45.) except <u>tiko'uru</u> (38.) and some <u>angatea</u> (43.). Larger shore crabs (46.-49.). Larger marine hermit crabs, <u>unga</u> (53.), <u>ungapara</u> (53.1) and, occasionally, lobsters, <u>koura</u> (54.), <u>papapapa</u> (55.).

Children of both sexes often take part in tautai va'ine and female adolescents participate fully in the collection of echinoderms, molluscs, crustaceans, and small fish. Some specialisation towards fish and crabs, the more mobile prey, can be seen among young male teenagers, who enjoy testing their skill with spear and knife. Yet, any of the objects of women's fishing may also be taken by men, especially for snacks, or when the sea conditions favour such collecting rather than the male forms of fishing. However, it is unusual for men collecting on their own account to show any interest in sea-cucumbers and sea-slugs.

Women, assisted by children and adolescents, are also chiefly responsible for the collection of decorative shells. Since it does not concern food, this collecting is not considered part of tautai va'ine. In approximate order of importance, the shells taken for women's (necklace, headband, decorative hanging) making are:

The snails, pupu renga and pupu tako (32.1 and 32.2); the Ear Shell, roro'ara (33.); the smaller Horn Shells, roaroa (15.); small Cowries, poreo (17.); Nerites, i'i (13.); Spiny Periwinkle, avare oronga (14.); some smaller bivalves, tunani/pipi (25./26.); and Star Limpet, mapi'i (9.).

Larger shells sometimes used as domestic decoration include:

Large Cowries, poreo (17.); finer Turban Shells, ariri (11.); and some Triton Shells and Spider Strombs, pu (16.).

The last of these are collected by men, outside the reef ridge.

The collection of echinoderms and molluscs is technically uncomplicated. Success depend largely upon knowing where to look for the creatures concerned rather than skill in the act of taking them (setting aside the old arts of deep-water octopus fishing, which are no longer employed). The hands, a large knife of the machete type, and a collecting container are all that is needed in the way of equipment. Some of the crustaceans require rather more specialised knowledge and technique.

Most of the reef crabs are readily taken at night in ramarama fishing (using pressure lights), as are the lobsters. It is likely that, as in other parts of the Cook Islands, all fishing was once more extensively guided by arapo the nights of the lunar month (see Appendix 3), certain prey being known to be plentiful on particular nights. In the taking of most fish arapo are no longer considered. However, informants did indicate periods of the lunar month when crabs and lobsters were thought to be most plentiful. These peak periods were said to be around the new and full moons. According to the professional fisherman Atingakau of Tavaenga, the best lobster nights are the fifth and ninth after the full. For reef crabs, and the coconut crab, the three nights following the new moon are considered particularly favourable.

The taking of lobsters in torch fishing is termed 'ma'era koura' while the technique of placing the foot on the lobsters back, and so preventing it from making use of its powerful tail to make an escape, is referred to as 'taka'i koura' or 'tu koura', 'stepping on koura'. Net, spear, hook and line, and hands are all used in capturing lobsters. Men and boys also use the spear (now usually a thin metal spear) against crabs in ko karai'i, 'the stabbing of crabs'. (One modern

development of this is 'ana karai'i, the slingshotting of beach crabs, in which male youths use rubber slings to propel metal bolts.

The taking of land crabs, with the catching of rats, was traditionally considered to be part of tautai 'enua - 'land tautai' or tautal i runga i te maro - 'tautai in the dry' (Buck, 1944:247). The biggest prize of this 'land fishing' remains the coconut crab, unga puku'ara (53.3). This is either dug out of its burrows in the period between March and October, preferably early in that period, before the underground diggings become too extensive, or it is hunted at night at other times of year when it wanders the makatea in search of food. The capture of coconut crab is an all male activity. Formerly, groups of men also co-operated in the taking of smaller land crabs from the inland-facing cliffs of the makatea between October and February, an activity known as 'uru karai'i' (Buck, 1944:248).

Fresh-water shrimp, koura vai and tiaka (56.) may be attracted to a particular stretch of water by the laying of a bait of chewed coconut. They can then be taken by a variety of methods - by hand, in nets or baskets, with small spears, or with the mu'ere a noose of coconut fibre which is slipped over the tail. There are traditions of a special technique, formerly used by groups of women, for catching the small shrimp 'ea'ea (57.). Bunches of hibiscus leaves were left overnight tied to stakes beneath the water. Into these 'ea'ea would crawl, to be collected in the morning.

Knowledge of the various crustaceans is, then, interwoven with knowledge of a number of differing collecting activities and techniques of capture.

Broader Category Relationships and General Comment

The last chapter dealt, for the most part, with the sub divisions of one of the two major categories which partition the Manganian animal world - 'mangaika', 'fish and cetaceans', the next will examine the membership of the second of these major categories - 'manu', 'birds and most land animals'. The creatures described in this chapter do not fall into either of these groupings. They are all 'apinga ora or mea ora 'living things', but the terminology does not go further than this in asserting an overall unity. As has been indicated, a number of distinct groupings are recognised among these invertebrates, of various levels of generality. Many of them are covert.

To recapitulate, the familiar echinoderms fall into three groups - that of the sea-cucumbers, most of which are subsumed under the single category term 'rori', that of the sea-urchins, the similarities between all common species being clearly recognised, and a more tenuous grouping of sea-stars. As with the English folk categories, no close relationships are held to exist between these different echinoderm groups.

There is a rather greater appreciation of unity amongst the molluscs (with the exception of the cephalopods, 'eke, 36., and, possibly, the ungakoa 28.). However, there is no Manganian collective term for molluscs, or for any major sub-grouping of molluscs (except, one might say, the cephalopods). The molluscan terminology is very much of one level. In terms of a standard taxonomic presentation, there would be said to be no labelled higher-order taxa. Yet resemblances of various orders of generality are recognised and taken to imply differing degrees of relationship between organisms. For example, the limpets, mapi'i (9.) and mama (10.) are seen as very

similar in structure and closely related, as are the muricids, mangeongo (18.) and mapara (20.). More general similarities are recognised between the various bivalves (22. - 27.), while still more limited comparisons are drawn between the sea-slugs and the terrestrial slugs, the two ngau (30. and 35.) and the two patito (29 and 34.). Some other covert groupings of molluscs are indicated in the summary of categories below.

One of the guidelines adopted in establishing such covert ordering was the order observed within women's listings of the 'things of the tautai va'ine'. In these lists certain animals were consistently grouped together. But, being based largely upon an assemblage of conversational detail rather than upon extensive formal testing, my construction of these broader category relationships remains, necessarily, somewhat impressionistic. Yet, it has the advantage of indicating groups of creatures which were of some immediate significance to informants rather than those that might be created as part of a test situation.

The larger crustaceans constitute another covert grouping. However, within that grouping the relationships are more explicitly formulated, with the crustaceans divided between the three categories of 'karai'i' true crabs; 'unga', hermit crabs; and 'koura', lobsters and shrimps. (Though, for some Mंगाians there are only two major divisions, 'unga' being a sub-category of 'karai'i'.) The 'koura' are further divided between those of sea and those of fresh-water, 'koura tai' and 'koura vai' (The term 'koura vai' may be used specifically, to refer to females of Macrobrachium sp., or generally, to refer to all fresh-water shrimps or prawns.) As indicated in the listings, the true crabs, 'karai'i' may also be grouped by their zones of habitation while there are also pairs of crabs, such as the grapsids papaka (49.) and

karai'i (50.), which are seen as closely related on the basis of overall similarity.

Amongst the few remaining minor marine invertebrates there is the diffuse grouping of 'veri', not so much a well-defined category in its own right as a gathering-together of creatures which fail to be anything more defineable. Only the polychaete worms, veri kaka'o (60.) and veri moana (61.) bear any real resemblance to the 'true veri', the myriapods.

Summary of Categories

Sea-cucumbers

- | | |
|--------------------------------|-----------------------------------|
| 1. <u>Rori</u> , Sea-cucumbers | Spp. of class Holothuroidea |
| 1.1 <u>Rori tapao</u> | <u>Holothunia leucospilota</u> |
| 1.2 <u>Rori one tea</u> | <u>Holothunia atra</u> |
| 1.3 <u>Rori pu'atoro</u> | ? <u>Actinopygia mauritiana</u> |
| 1.4 <u>Rori pua</u> | ? <u>Dendrochirotid</u> sp. |
| 1.5 <u>(Rori) kanaenae</u> | <u>Holothunia pervicax</u> et al. |
| 1.6 <u>(Rori) purupuru</u> | <u>Holothuria</u> sp. |
| 2. <u>Ngata</u> , Sea-cucumber | ? <u>Holothuria nobilis</u> |

Sea-urchins

- | | |
|--|-------------------------------|
| 3. <u>Kina</u> , Burrowing Urchins | <u>Echinometra mathaei</u> |
| 4 <u>Vana</u> | <u>Tripneustes</u> sp. |
| 5. <u>Kina vana</u> , Poison Urchins | <u>Echinothrix ?diadema</u> , |
| | <u>Diadema</u> spp. |
| 6. <u>Atuke</u> , Slate-pencil Urchins | <u>Heterocentrotus</u> spp. |

Sea-stars

- | | |
|---|---------------------------------|
| 7. <u>Ma'ama'a tai</u> , Big Blue
Starfish, and others | <u>Linckia laevigata</u> et al. |
| 8. <u>Taramea</u> , Crown of Thorns | <u>Acanthaster planci</u> |

Molluscs - Gastropods and Bivalves

- | | |
|--|----------------------------------|
| 9. <u>Mapi'i</u> , Star Limpets | <u>Patella flexuosa flexuosa</u> |
| 10. <u>Mama</u> , Cap Limpets | <u>Patelloida ?conoidalis</u> |
| 11. <u>Ariri</u> , Turban Shells | <u>Turbo</u> spp. |
| 12. <u>Karikao</u> | <u>Astraea rhodostoma</u> |
| 13. <u>I'i</u> , Nerites | <u>Nerita</u> spp. |
| 14. <u>Avare oronga</u> , Spiny Periwinkle | <u>Echininus cumingii</u> |

15. <u>Roaroa</u> , Auger and Horn Shells	<u>Terebra</u> spp., <u>Rhinoclavis</u> species, et al.
16. <u>Pu</u> , Triton Shells, Spider Strombs, and others	<u>Charonia tritonis</u> , <u>Lambis</u> spp. et al.
17. <u>Poreo</u> , Cowries and False Cowries	<u>Cypraea</u> spp. and <u>Ovula</u> spp.
18. <u>Mangeongoe</u> , Muricid Rock Snail and others	<u>Drupa</u> spp., <u>Morula</u> spp., et al.
19. <u>Matakura</u> , Coral Shell	<u>Coralliophila violacea</u>
20. <u>Mapara</u>	? <u>Thais</u> sp., ? <u>Morula</u> sp.
21. <u>Popoto</u> , Cone Shells	<u>Conus</u> spp.
22. <u>Pa'ua</u> , Clams	
22.1 <u>Pa'ua vava'i</u>	<u>Tridacna</u> spp.
22.2 <u>Pa'ua kute</u>	<u>Chama</u> ? <u>pacifica</u>
23. <u>Parau</u> , Pearl Shells	<u>Pinctada</u> sp., <u>Isognomon</u> spp., et al.
24. <u>Ka'i</u>	<u>Asaphis violescens</u> et al.
Various	<u>Quidnipagus</u> sp.,
25. <u>Tunani</u>	<u>Codakia</u> spp.,
Bivalves	<u>Periglypta</u> spp.,
26. <u>Pipi</u>	<u>Scutarcopagia</u> spp. et al.
27. <u>Kakuku</u> , Mussels	<u>Modiolus auriculatus</u>
28. <u>Ungakoa</u> , Worm Shells, Tube Worms, and others	Vermetidae, Serpulidae, et al
<u>Sea-slugs and Sea-hares</u>	
29. <u>Patito tai</u> , Sea-slug	Opisthobranch sp.
30. <u>Ngau</u> , ?Sea-hare	?Aplysiid sp.
31. <u>Tuatai</u> , Sea-slug	Nudibranch sp.

Terrestrial and Fresh-water Molluscs

32. Pupu, Snails

32.1 Pupu renga

Helicina flavescens

32.2 Pupu tako

Theodoxus chlorostoma et al.

e.g. Bradybaena similis,

Sublina octona.

33. Roro'ara, Ear Shells

Melampus flavus form luteus

Certain similarities are perceived between 32.

and 34., with some interchange of these terms

for common, drably-coloured snails.

34. Patito 'enua, Slugs

?spp. of family Limacidae

35. Ngau, Larger Slugs

?spp. of family Veronicellidae

N.B. 34./35. are also compared in general structure to 29./30.

Molluscs - Cephalopods

36. 'Eke, Octopus and Squid

36.1 'Eke maori

Octopus sp.

36.2 'Eke tapairu

Octopod sp.

36.3 'Eke taevao

Octopod sp.

36.4 'Eke purenu

Octopod sp.

36.5 Mu'eke

sp. of Teuthoidea

36.6 ('Eke) korokoroa

Cephalopod sp. or spp.

Crustaceans

True Crabs - Karai'i

Reef Crabs

37. Upaki

Carpilius spp.

38. Tiko'uru

Xanthias tetraodon,

Etisus ?splendidus



39. <u>Ti'oro</u> , Swimming Crabs	<u>Charybdis erythrodactyla</u> and other Portunidae
40. <u>Tuapuku</u>	<u>Plagusia ?depressa tuberculata</u>
41. <u>Moka</u>	<u>Plagusia depressa tuberculata</u>
42. <u>Toetoe</u>	<u>Percnon planissimum</u>
Lagoon Crabs	
43. <u>Angatea</u>	<u>Zoymus aeneus</u> ?et al.
44. <u>Ku'ani'ani</u>	<u>Daira perlata</u>
45. <u>Tungerengere</u>	<u>Atergatis ?floridus</u>
Shore Crabs	
46. <u>Titirotai</u> , Ghost Crabs	<u>Ocypode ?laevis</u> and other Ocypodidae
47. <u>Mikia</u>	<u>Grapsus ?albolineatus/ ? tenuicrustatus</u>
48. <u>Tumatumavai</u>	<u>Metopograpsus ?thukuhar</u> et al.
49. <u>Papaka</u>	<u>Pachygrapsus</u> sp.
Land Crabs	
50. <u>Karai'i</u>	Grapsid, <u>?Cyclograpsus</u> sp.
51. <u>Tupa</u>	<u>Cardisoma rotundum</u>
52. <u>Irave</u>	<u>Cardisoma longipes</u>

Hermit Crabs and Coconut Crabs - Unga

53. <u>Unga/ungaunga/kakara</u>	Paguridea and Coenobitoidea
53.1 <u>Ungapara</u>	<u>Dardanus</u> sp.
53.2 <u>Unga kura</u>	Coenobita sp.
53.3 <u>Unga puku'ara</u>	<u>Birgus latro</u>

Lobsters and Shrimps - Koura

- | | |
|---|--|
| 54. <u>Koura (tai)</u> , Spiny Lobsters
and some marine shrimp | <u>Panulirus</u> spp.,
<u>Alpheus</u> sp. |
| 55. <u>Papapapa</u> , Spanish Lobsters | <u>Ibacus</u> sp. |
| 56. <u>Koura vai/tiaka</u> , Long-armed
Shrimp (prawns) | <u>Macrobrachium</u> sp. |
| 57. <u>'Ea'ea</u> , small shrimp | |
| 58. <u>Papapapa</u> , very small fresh-
water crustacean | |
| 59. <u>Rapa nui</u> , ?Crayfish | |

Polychaete Worms

- | | |
|---|---|
| 60. <u>Veri kakao</u> , Bristieworms | Amphionomidae, <u>Eurythoe</u>
<u>complanata</u> ?et al. |
| 61. <u>Veri moana</u> , 'Sea Centipede' | ?sp. of family Nereidae |

'Jellyfish'

- | | |
|---------------------------------------|---|
| 62. <u>Tutae to'ora</u> , ?Man of War | Scyphozoan, ? <u>Physalia</u>
<u>utriculus</u> |
|---------------------------------------|---|

CHAPTER 6

THE BIRDS AND LAND MAMMALS.

The quintessential 'manu', the birds and land mammals, can be quite neatly divided between the 'manu rere' , 'flying manu', and the 'manu vaevae 'a', 'four-legged manu'. However, the latter, pseudo-Biblical category is of little importance in the daily life of Mंगाians and is seldom referred to. An alternative distinction is that between 'manu rere vao', 'wild manu', and 'manu 'angai', 'fed/domesticated or pet manu'. The typical manu 'angai are those four-footed domesticates which are also seen as typical manu vaevae 'a. In recognition of the terms most commonly used, I have chosen to divide this chapter into sections covering 'manu rere' and 'manu 'angai', allowing the rodent category 'kiore' to stand on its own.

The Birds

Formerly, birds were sought both for food and feathers. There has been a great decline in both these uses. Wild birds have become an insignificant item in Mंगाian diet. The use of feathers in the adornment of religious images vanished with the establishment of Christianity. Feather head-dresses and other prestigious feather-covered clothing (see Gill, 1894:27) also ceased to be produced. However, black or white feathers are still sometimes used in the production of fishing lures. Information on the traditional practices of

bird-hunting is extremely sparse, but it seems that the makatea provided most in the way of bird resources (Gill, 1894:26).

No especially 'good' way of sub-categorising the manu rere emerged from my discussions with informants. Clearly, locational distinctions were one possibility, as when differentiating te au manu o te moana, 'birds of the sea', te au manu i runga i te 'enua, 'birds on the land', or te au manu i runga i te ta'atai, 'shore birds'. But, none of my informants presented a set of location-based categories as a systematic division of the 'manu rere' category.

One suggested systematic division was a pragmatic one, based on the actual usefulness of birds. The manu rere would fall into three divisions: a) those taken for food (manu kainga), b) those taken for their feathers, 'uru manu', and c) those of no practical use (manu puapinga kore). This division presents certain problems for listing since the first two groupings overlap, food birds with black or white feathers also providing these for lures. Nevertheless, to provide one example of this kind of alternative basis for organisation, I have adopted its principles to order the listing of bird species in this chapter, proceeding from those birds most likely to be used for food to those which have little to offer man, or seldom come into contact with human beings.

Some other possible orderings of the birds will be considered in the discussion which concludes the chapter.

MANU RERE

Birds

1. **Mokora** - Grey Duck, Anas superciliosa. These are the only birds to be seen feeding on inland water. They will nest in the zone of the taro swamps and. small lakes or, possibly, on the lower slopes of the central hills.

Mokora are prized as a finely-flavoured food-bird of good size. They are now hunted with shot-guns, subject to the availability of cartridges. In the early morning, large groups of duck may be sought out as they feed on the lakes. There are no records of the traditional practices of duck hunting, but it is said that, earlier in this century, concealed men would surprise duck at the water's edge or near their nests, seizing them or striking them with a stick. Possibly, the introduction of domestic duck, in the last century, stimulated interest in the wild duck as a food resource. But it is likely that some have always been taken. The collecting of duck eggs is mentioned in historical tradition (Gill, 1894:154).

2. **Ngoio** - Brown Noddy, Anous stolidus. These dark-grey sea-birds, with a whitish cap to the head, are most in evidence between November and March, when they nest in the crowns of coconut palms on the coastal strip or makatea. As the only dark diurnal sea-bird seen in flight, other than the much more massive frigate birds, they are readily identified from a distance.

Juvenile ngoio are sought as food. They are taken from nests, usually by young men or boys, in the period from December to February . (In fact, I recorded only two certain

cases of noddy-taking in Oneroa village during fieldwork. But the practice is said to have been more common formerly.) The ngoio are also thought of as being friendly birds, and captured juveniles are sometimes kept as manu 'akaperepere (= cherished manu), 'pets', and fed on fish.

3. **Tavake** - Red-tailed Tropic Bird, Phaeton rubricauda and.

4. **Pirake** – White-tailed Tropic Bird, Phaeton lepturus.

The two tropic birds are very similar in general form. Both have white bodies (some black markings on P. lepturus are not readily visible in flight) but differ in the colour of tail-streamers and in size. The White-tailed Tropic Bird is somewhat the smaller. Tail colour was the first distinguishing feature employed by all informants. In addition, it was suggested that pirake habitually fly higher than tavake. My own observations could not confirm this. Small groups of either bird can be seen in aerobatic flight within the inner makatea cliffs, in which their nest-holes are to be found, or in transit to and from the ocean. Both species attract the attention with short, harsh cries.

Though there is no Manganian 'family' term for the tropic birds, the tavake and pirake are seen as closely related, often being spoken of together. In Oneroa, at least, the red-tailed tavake seems to be the more familiar. Pirake were often described as 'like tavake with a white tail' and errors in identifications favoured the tavake.

Again, it is juveniles which are taken for food, either when they have fallen accidentally from nests or by men and boys climbing for them on the cliffs. This dangerous activity has

resulted in deaths, and is now seldom undertaken unless a readily accessible nest-hole can be seen.

The white body-feathers of both species are considered suitable for fishing lures. The red tail-streamers of the adult P. rubricauda were once much valued as decorative feathers. Formerly, greater emphasis must have been placed on the taking of the adult birds.

5. **Titi** (Onomatopoeic - from a sharp 'ti - ti' cry.) A Shearwater or Petrel, a sp. of family Procellariidae.

Flying at night and nesting in burrows on the central hills, titi are, now, seldom seen. Although I heard nocturnal cries attributed to titi, I saw no specimens. The birds were described as pale in colouring, nearly white (teatea), and are said to have beaks hooked at the end, in the usual manner of the petrel family.

These are the only birds for which there is a published description of former hunting practices. Gill (1880:8) writes:

In the month of December it leaves its burrows in the red mountain soil, and comes to the rocks near the sea to fatten its young on small fish. By day it hides in holes and sleeps. The hunter has only to call at the entrance of the dark cave, in a plaintive tone, E titi e, when the foolish bird, imagining it to be the voice of its mate, comes out of its secure hiding place, and, dazzled by the unwelcome light, allows itself to be caught by hand.

None of my informants mentioned a migration from hill burrow

261

to coast rocks. It seems that the few titi now taken come from burrows discovered by chance, from which they may be dug out, if necessary. They are considered good eating. Whether their feathers were ever used decoratively is unclear, but they are suitable as lures for soldierfish and squirrelfish, ku (Holocentridae, Ch.4-64.).

The titi are said to resemble the rakoa and upoa (see 18. and 19.).

6. **Moa** - Chicken, *Gallus gallus*. Domestic fowls were introduced to Mangaia, by the mission teachers, in the first half of the last century. They are commonly to be seen running freely on compounds in the villages, while some live in a semi-feral state in light bush, both on the makatea and in the interior of the island. Almost every household has chickens, though the holdings claimed ranged from two to one hundred birds. Chickens are the only birds to be consistently differentiated with respect to sex. (Except, perhaps, for the frigate birds, see 20.; sexual differences in Mangaia's native birds are not, in any case, very marked.) Cockerels are referred to as 'toa moa'. The term 'toa' is used for the males of all domesticated food animals. It has the other interconnected meanings of: a) a warrior, a man of strength and bravery, and b) the ironwood, Casuarina, the strong wood formerly used for making weapons. Hens may be spoken of as 'moa va'ine' (= female moa) or as 'tinana moa' (= moa mothers). 'Tinana' is a general term for mother animals (manu), mainly used in connection with the domesticated species. Some informants felt it to be a Rarotongan rather than

a Mangaian word. Using the standard words for animal juveniles, chicks are simply 'unuunu moa' or 'punua moa'. In discussing chickens, particular birds are often indicated by reference to their colour. The main recognised colourings are: moa tea - white chickens, moa tako - black, moa re'ure'u or moa tukuangi - grey, moa kura - russet, moa renga - yellowish, moa kau'a - with glistening, speckled feathers, as those of the bird kau'a (14.). Moa tea and moa tako can provide lure feathers. Chickens are, now, by far the most popular food birds.

The six birds discussed so far are those sought or kept primarily as food. However, all birds are regarded as potentially edible. Several informants claimed to have eaten the tern kakaia (7.) and there were reports of the sampling of just about every common bird species of reasonable size. These included frigate birds (20.), reef herons (9.), golden plover (10.), tattler (11.), and mynah (17.).

7. **Kakaia** (= Brilliant or shining). White Tern, Gygis alba, moderately small sea-birds with uniform brilliant-white plumage. They roost and lay eggs on the bare boughs of trees on the coastal strip and makatea. A number roost in the middle of Oneroa village, low enough to be brought down by stone-throwing children. Canoe fishermen also encounter them at sea taking small fish.

Kakaia feathers, especially those of the breast, are used in fishing.

8. **Mo'omo'o** (Said by some to be onomatopoeic.) Almost certainly Spotless Crake, Porzana tabuensis. They are described as small, black birds with red legs and a red eye. Some informants claimed that the beak of the mo'omo'o is also red, whereas that of P. tabuensis is blackish-green. However, it is not well-known to many Mंगाians and sightings are usually brief. Neither I, nor the ornithologist David Holyoak, who has worked on Mंगाia, have seen the bird. However, Holyoak reports hearing calls typical of the Spotless Crake (personal communication). The mo'omo'o are birds of the taro-growing zone, said to be found amongst the vegetation surrounding and infiltrating the taro swamps. They seldom leave cover, and fly only if pursued. A few fall prey to dogs, but opportunities to examine the mo'omo'o closely are rare. Those people who are most familiar with these birds are fishermen who have made use of their black feathers.
9. **Kotuku** - Reef Heron, Egretta sacra. These occur in two colour phases which are differentiated as:

9.1 **Kotuku tea** (= White kotuku) - the white pale phase.

9.2 **Kotuku tako** (= Black/dark kotuku) - the dark grey phase.

In listing manu rere some informants simply gave the term 'kotuku' whereas others gave the two colour phase terms.

Reef Herons are to be seen fishing in shore pools. They are by far the largest of shore birds, readily recognisable by their colouring and their long necks. Although some nest in trees on

the coastal strip, many nest inland, both in low trees and on the makatea cliffs. They are extremely familiar to all Mंगाians from an early age. 'Kotuku, kotuku, rere 'aere!', 'Kotuku, kotuku fly away!', is a popular children's chant.

The white kotuku tea may be taken for lure feathers.

All the birds 3. - 9. can provide feathers ('uru manu) suitable for the production of lures (ma'unu) which are mainly used in the fishing of the soldierfish (Holocentridae) and the smaller jacks or trevallies (Carangidae). Such feathers are pure black or pure white. The remaining twelve categories may be regarded as including those birds of no real practical/economic use.

10. **Torea** and 11. **Kuriri** - Lesser Golden Plover, Pluvalis dominica and Wandering Tattler, Heteroscelus incanus, the two smaller shore birds. Both the categories and the birds themselves are much confused by present-day Mंगाians. Informants found it very difficult to explain the difference between torea and kuriri. A few suggested that they were the same bird. Others explained that the calls were distinctive. In fact, plover and tattler do differ significantly in a number of physical features. The plover's back is distinctly brown with paler speckles. The pale grey-brown legs are long and the beak short. Though much the same in body size, the tattler has shorter, yellow legs and a longer beak. The upper parts are a fairly even grey-brown. Tattlers are the more plentiful, but neither bird is uncommon.

When the two species were seen together informants were quite capable of differentiating them, though not necessarily certain as to which were torea and which kuriri. It seems that,

in this case, although distinct perceptual categories may be readily realised, many Mंगाians lack a key to identification which would allow them to relate these with precision to the terminology.

Identifications favoured the relationships kuriri = Wandering Tattler, torea = Lesser Golden Plover. Other evidence provides support for this use of the terms. 'Kuriri' is said to be onomatopoeic, echoing the bird's cry (tangi). The call of the tattler has been described as 'oulili' and is quite different from the one or two note whistle of the plover. A person who nods his head repeatedly can be described in the Mंगाian language as 'torea tungoungou', 'nodding torea'. This is said to relate to the actions of the bird. The plover can often be seen in a characteristic head-bobbing motion. In addition, torea are reputedly more often seen inland than kuriri. It is the case that, while the tattlers seldom feed other than along the shore and reef, plovers are not uncommon inland feeding in the taro swamps or on pineapple-growing lands.

12. **Tangaeo or Tanga'eo** (Onomatopoeic - a very accurate rendering of the cry, with emphasis on the long 'e' sound. Elsewhere in the Southern Cooks kingfishers are known as 'kotare' or 'ngotare'.) Kingfisher, Halcyon ruficollaris. These are small, brightly-coloured birds of the bush areas, particularly those of the makatea. Their upperparts are a shining blue-green, the underparts creamy with a russet collar. Informants claimed, convincingly, that their favourite nesting places are dead coconut palms, in which the birds excavate holes. It was probably this behaviour that led F.W. Christian, in his 'List of

Mangaia Island Birds' (Christian, 1920), to mis-identify tangaeo as woodpeckers.

It is said that tanga'eo were once much more common on Mangaia. Local people blame their decline on the introduction of the mynah (17.) which, it is claimed, both fought with the kingfishers and damaged their eggs and nests.

13. **Kerearako** (Christian,1924 - proposes that 'kerearako' relates to the colours of the bird's plumage - kere = dark green, a-rako = inclining to light green. My informants were doubtful of this interpretation, but offered no alternative.) Mangaian Reed Warbler, Acrocephalus vaughani kerearako. The smallest birds of shrub and bush, kerearako have dull olive-green upperparts, the lower body being a pale, yellowish green. They are most plentiful on the makatea and may be found in areas of secondary growth surrounding villages and cultivations. For nesting, they are said to favour lemon hibiscus bush, forming small cup-shaped nests.

The birds may usually be located by their calls, a series of chirrs interspersed with more musical passages. They are noted for their noisiness.

14. **Kau'a** (Onomatopoeic) and 15. **Patangaroa** - possibly, two colour variants of Long-tailed Cuckoo, Eudynamys taitensis, a migrant visitor to the island. For only one of my four sightings of Long-tailed Cuckoo was an informant present. On that occasion the bird was identified as patangaroa.

Descriptions of patangaroa seemed to confirm this identification, emphasising the long, cross-banded tail ('uku

roroa toretore). The call of the patangaroa is said to be a whistle. A whistling cry is the commonest call of the Long-tailed Cuckoo. They are known to frequent coconut palms moving frequently from tree to tree, the kind of behaviour one would expect of the cuckoo.

The kau'a are said to closely resemble patangaroa in form and behaviour, though the plumage is said to be paler in colour, shining and speckled. This kind of feather colouring in other birds is, itself, known as 'kau'a'.

Several informants proposed that the kau'a of Mangaia was the same as the karavi'a of Rarotonga. Stephen Savage's Rarotongan dictionary (Savage, 1962) identifies karavi'a with the Long-tailed Cuckoo. It is certainly possible that the kau'a are a colour variant of E. taitensis. These birds have a range of cries other than the whistle which might account for those attributed to the kau'a.

However, this is the one case in which the findings of my own study seem to conflict with the nineteenth century evidence from the works of Wyatt Gill. Gill (1885:99) describes the kau'a as 'of the kingfisher kind', with variegated plumage, being rather larger than a pigeon but having a six inch bill. Frequently to be seen fishing on the reef, it was good eating for all except the Ngati Tane tribe, of whose god it was the messenger and physical form (see Ch.9 and Ch.10). 'Kau'a' was its cry. A song, supposedly written about the year 1820, refers to the kau'a and repeats the line:

E roroa ua na ngutu e!

The beak is long!

(Gill, 1876a:49.)

This picture of a long-billed reef or shore bird bears little relation to the Long-tailed Cuckoo which, though migrating over broad expanses of sea, is very much a bird of the land. The bird which seems closest to Gill's description is the Bristle-thighed Curlew, Numenius tahitiensis, a long-billed shore bird which winters in Polynesia. A few of my informants claimed to recognise this bird from photographs, saying that it was an occasional visitor. They did not know a Manganian term for it. So, Gill's kau'a may have been a curlew. Still, the whistling cry of N. tahitiensis does not seem very like that attributed to the kau'a.

It is difficult to imagine how the term 'kau'a' could have been transferred from a long-billed bird of shore and reef to the relatively short-billed, tree-dwelling, cuckoo-like bird with which it is now associated. But it must be said that the kau'a is now a very unfamiliar creature. Few claim to have seen it, though more say that they have heard its distinctive cry. Whether Gill was mistaken in his description, or whether the current image of the kau'a has become distorted through report and lack of direct knowledge, must remain an open question.

16. **Kara'ura'u** (Onomatopoeic.) Another of the more mysterious of Mangaia's birds, the kara'ura'u are reported to have become scarce in the last thirty years. It is generally agreed that the kara'ura'u nest sites are in the caves and rock holes of the inner face of the makatea. Some informants compared the body-shape of this bird to that of the plover, torea (10.), others to that of the tern, kakaia (7.). It is said to be rather smaller than the latter, probably less than 25cm. in length. The colour was generally given as grey, possibly with white underparts. This

description could quite well fit the Blue-grey Noddy, Procelsterna cerulea, a small tern, grey above, pale grey below, which is known to nest in rock holes. From its known distribution, it is feasible that this tern could be on Mangaia.

The kara'ura'u is, now, an unfamiliar bird. There were reports of it being seen in candlenut trees on the makatea or at sea, fishing. But, as with the kau'a (14.), more claimed to have heard it than to have seen it. Like the kerearako (13.), it is thought of as a noisy bird.

17. **Manu kavamani** (= The government's manu. The government sanctioned the introduction of these birds as a control on insect pests, particularly the Coconut Stick Insect, Graeffea crouanii.) Indian Mynah, Acridotheres tristis. These birds were first introduced to Rarotonga early in this century. Though it is said that they were not successfully established in Mangaia until the late '50's or early '60's, they are, by now, the most frequently seen of all the island's birds. Mynahs are plentiful in the villages and present in almost all areas except the shore and the most rocky or densely-bushed parts of the island.

The mynahs are un-shy and unloved, having become pests themselves, damaging bananas and pawpaws on the trees. Their enthusiasm for stealing food from houses and domestic compounds has led to them being spoken of as 'manu kekeia' 'thief birds'. They are reputed to attack other birds, especially the kingfisher, tanga'eo (12.), and even chickens.

18. Upoa and 19. Rakoa - Two dark, night-flying sea-birds, said to nest in makatea rock holes, evidently Petrels or Shearwaters, spp. of family Procellariidae; Wedge-tailed Shearwater, Puffinus pacificus ?and others.

There is considerable confusion between rakoa and upoa and descriptions differ in detail. A few informants believed that there were two terms for a single bird, but others suggested differences in cry and in colouring. It seems that 'rakoa' may be onomatopoeic, derived from a guttural rolling call. However, the upoa was said to produce a disturbing child-like wailing. (One informant who believed upoa and rakoa to be the same bird attributed the wailing cry to the female.) It was widely agreed that the rakoa has an area of white plumage on its underparts, possibly being entirely white below. The upoa was sometimes said to have white underparts, but was often described as completely dark (tako).

A single specimen of a dark grey-brown shearwater was taken during fieldwork. From my photographs, this has been identified as the dark phase of Puffinus pacificus. The consensus was that this bird was an upoa (though it should be noted that nearly half the informants consulted knew of no term for it.) The squealing cries of P. pacificus would fit well with those attributed to the upoa. Dr. David Holyoak has suggested (in a personal communication) that another species quite likely to nest on Mangaia is Audubon's Shearwater, Puffinus lherminieri. Dark above and light below, with a repeated two-note call, this might make a creditable rakoa.

Neither rakoa nor upoa are common, and they are more likely to be heard than seen. Even then, I heard the rakoa only

once in ten months and never heard the upoa. Close contact or capture is rare. My one specimen was taken by chance, having fallen, apparently blinded by the lights of the small hospital ward on the makatea.

These two birds are recognised as resembling the titi (5.). However, the terms 'upoa' and 'rakoa' have associations quite different from those of 'titi'. Whereas titi seems to be thought of principally as a good food bird, its relatives are rather sinister creatures strongly linked with spirit activity and omens of death (see Ch.9).

20. **Kota'a** (? = That which soars - derived from 'ta'a' = 'to soar or glide'.) Frigate Birds, Fregata minor and Fregata ariel These are by far the largest birds in Manganian skies, with wingspans up to 215cm. in the case of the Great Frigate Bird, F. minor. The males of this species are entirely black, but male Lesser Frigate Birds, F. ariel, have white patches at the wing bases. Females of both species have white breasts. The size differences between the species are not readily apparent from sightings in the air.

Manganians do not make a distinction between the Great and Lesser Frigate Birds. Many recognise that some kota'a have white patches while others do not, but little importance is attached to the distribution of the markings. Informants did not provide a common explanation for these differences, though some did attribute them to differences of sex.

The frigate birds fly the Manganian coasts but do not nest on the island. Known to ride the strong winds, they are particularly associated with stormy weather. Their size and shape make

them unmistakable in flight. Their V-shaped tail ('uku nga'a = split tail) is considered particularly characteristic.

21. **Toroa** - A large, dark bird seen only in the open ocean by Canoe-fishermen. It sits on the water and feeds on fish. Descriptions fall into two sets, suggesting that the term 'toroa' is applied to more than one species.

The first set of descriptions are of an extremely massive bird with a wingspan in excess of a man's outspread arms, a bill hooked at the end, and a powerful, unpleasant smell. This sounds like a Giant Petrel, two species of which, Macronectes giganteus and Macronectes halli are known to wander into island Polynesia. These birds are sometimes known as 'Stinkers', from their distinctive odour.

A second group of descriptions tell of a somewhat smaller bird, dark above but white below, with a straight beak. This suggests the Brown Booby, Sula leucogaster, which is a likely visitor to Mangaian waters.

This completes the list of categories for those birds currently living on, or seen in the vicinity of, Mangaia. However, it seems highly likely that, at one time, there were pigeons or doves, Ducula spp. and/or Ptilinopus spp., living on the island. Such birds are present on neighbouring Rarotonga, where they are known as 'rupe' and 'kukupa'. Gill (1894:26) states that in the pre-contact period Mangaia had 'two or three varieties of pigeon', and mentions a pigeon in his rendering of a local myth (1876a:52). It is not clear what term he was translating, but it may well have been 'rupe', which was given in F.W. Christian's Mangaian vocabulary (Christian, 1924) as 'the old Mangaian

and Cook. Is. word for the large grey dove (now extinct)'. Both the terms used on Rarotonga are very familiar to Manganians. I could obtain no evidence of pigeons or doves having been on the island within living memory.

Flying-foxes

A single mammal falls within the category 'manu rere'.

22. Moa kirikiri ('Moa' = a fowl - see 6. 'Kirikiri' may be derived from 'kiri' = skin, leather, bark. 'Moa kirikiri' could then be interpreted as 'skin-covered or leathery fowl'. But this is conjectural.) Flying-fox, Pteropus sp.

Flying-foxes roost in the gullies which cut the surface of the makatea plateau. They are known to favour the smaller, shrub-lined gullies with one or more large trees on which the bats can congregate. Such roosting communities are tanga moa kirikiri. It was said that there may be as many as fifty to one hundred bats to a sizeable branch. However, their total numbers are thought to have declined in the last half-century. If they are not sought out, it is possible not to see a flying fox for months.

The moa kirikiri are among the animals taken for food. The main hunting season is the period from May to July, when the fruit bats are at their fattest and are seen around the kapok trees. Early morning, when the roosting flying-foxes are lethargic, is considered the best time for a hunt. Nowadays, a shotgun is used to bring down a number of bats which are then clubbed. Formerly, thrown sticks were used to bring the flying-foxes to ground. Moa kirikiri are known to be able to scent humans. Roosts are approached down-wind.

Juveniles taken alive are sometimes kept as manu 'akaperepere, 'pets'.

Though the flying-foxes are fully accepted as members of the 'manu rere' category, otherwise composed of birds, and though the term 'moa kirikiri' itself appears to suggest a connection with birds, the obvious physical differences of bats and birds are very well-known. In some respects, the flying-foxes were said to be like the kiore the rodents.

The Rodents – Kiore

It is likely that, prior to European contact, there was a single rodent species on Mangaia, the original kiore. This would probably have been that small rat of Oceania, Rattus exulans, which apparently spread with the Polynesian peoples. The small, 'native' rats were taken for food. But, under the pressure of missionary disapproval, rat-eating ceased in the last century (see Ch. 8). The traditional methods of rat-catching have now been forgotten. However, five techniques were recorded by Buck (1944:247) from the accounts of informants.

- a) Poki (= Covering) - A man sitting by a rat track would bring down his hand on rats as they were driven along by a companion.
- b) Tata (=Scooping) - A technique similar to (a) but in which both hands were used.
- c) Ko (= Digging) - Rats were dug-out from their holes.
- d) Kete (= Basket) - An old woman would peg a basket on a rat track, with bait inside it. Once the rats had entered, the basket would be closed by pulling an attached cord.
- e) Pu'i kiore (= Rat clearing) - A snare of coconut husk fibre was

set in a small clearing prepared in the bush. This was baited with candlenut.

Rats are no longer positively valued. Those of the now prevalent, introduced species are regarded as a minor pest, particularly in respect of the pineapple crop.

23. Kiore - Small rodents; Rats, Rattus spp., ?and others.

Traps set on the coastal strip, makatea and in the interior of the island yielded only R. rattus (possibly, both R. rattus alexandrinus and R. rattus frugivorus) I cannot be certain whether or not there are mice on Mangaia, but it seems that some, at any rate, of what certain European visitors to the Southern Cooks have taken for mice, e.g. Mus musculus were smaller individuals of Rattus species.

For most purposes, Mangaians speak of 'kiore' in general. However, they sometimes differentiate between the smaller kiore seen around houses and the larger rats which are observed amongst the pineapple crop. It was suggested that the peak rodent activity in these two areas occurred at different periods - around the houses, from July to September; amongst the pineapple, in the winter crop of April to June. So, at least two kiore types are explicitly distinguished.

23.1 Kiore ngangao (= Big kiore) A large, grey-brown, long-tailed rat, a pest of sweet-potato and pineapple plantations. Large specimens of Rattus rattus were identified as kiore ngangao.

23.2 Kiore paniora (= Spanish kiore, “Maybe it came from Spain” was the only explanation offered for the epithet ‘paniora’.) A smaller, grey rodent found in many areas of the island, but common around houses. The expected length is less than about 23cm., including tail. (Kiore ngangao may be 37cm. or more in length.)

The terms ‘kiore potopoto’ (= Short kiore) and ‘kiore paniora’ probably refer to the same creatures. Both were applied to juveniles of R. rattus.

Many informants used the terms ‘kiore’ and ‘kiore ngangao’ to cover all local rodents, ‘kiore’ being applied to the smaller forms. A few spoke of ‘kiore tea’ (= white kiore). A small population of pure white rats is reputed to exist in a particular area of the Tavaenga district.

Whether any of the original kiore, presumably R. exulans, still exist in any part of the island is not clear. Their presence is certainly not obvious, and none of the descriptions given of today’s kiore fit R. exulans well. At best, they have been extensively displaced by R. rattus.

Domesticated Animals - Manu ‘Angai

The term ‘manu ‘angai’ literally ‘fed manu’, has been mentioned in Ch.3 as a general term for what can loosely be called ‘pets’ and domesticated food animals. It may be applied to indigenous wild creatures which, having been captured, are kept in the house or domestic compound (such as Brown Noddies, 2.; or young flying-foxes, 22.). But, it is mainly applied to those major domesticates

which have been introduced over the past one hundred and sixty years.

MANU 'ANGAI

24. **Puaka** - Pigs, *Sus scrofa*. Since their introduction, in the third decade of the last century, pigs have become food animals of major importance, central to all feasting (see Ch.8). Though there were no pigs on Mangaia at the time of the first European contacts, Gill (1876b:15) has noted that puaka appears as an element in some traditional place names, such as 'pa puaka' (= puaka enclosure) and 'puaka ngunguru' (= grunting puaka), suggesting some knowledge of pigs among the ancestral Mangaians. Pigs were certainly present prior to the last century on other islands of the Southern Cooks.

Nonetheless, the present familiarity with pigs has grown up since they made their appearance with the mission teachers. Mangaian pigs now show a mixture of many strains. The descriptives applied to pigs reflect this variety. Four basic colour patterns are recognised - puaka tako, 'black pig'; puaka tea, 'white' pig', i.e. usually a pinkish, European-type pig; puaka purepure, 'spotted pig'; and puaka taputea, 'a pig with a central band between black fore- and hind-parts'. Variations in bodily form are also referred to; thus: puaka va'aroa, 'long-mouthed pig', one of the prominently-snouted Polynesian type; puaka va'a potopoto, 'short-mouthed pig', closer to the shorter-snouted European type. There are also puaka nekeneke (= shuffling puaka), fat, squat pigs. Fat hangs down over the tops of their short legs to the point that they appear to walk with difficulty.

They are highly prized animals and are contrasted with the tall, lean, puaka mai'au, which are of lesser value. The difference between European-type and Polynesian-type is sometimes expressed in the distinction of 'puaka papa'a' (= foreigners' puaka) and 'puaka maori' (= native puaka).

There are also distinctions related to sex and age. A boar is referred to as 'toa', or as 'toa ra'o' (= male with testicles) as opposed to 'toa ka'i' (= cut male), a gelding. Juvenile males can be spoken of as 'manga toa', i.e. on the way to being a boar. The unmated female is 'puaka rapa 'ou' and, as with other livestock, the grown but sexually immature animals of both sexes are known as 'tangutu'. Sows are 'puaka va'ine' (= female puaka) or 'metua puaka' (= parent puaka) or 'tinana puaka' (= mother puaka).

There is, clearly, a wealth of terms which may be used in combination to sub-divide the 'puaka' category, almost to the specification of a particular pig.

Some pigs are kept on foot-ropes on the borders of domestic compounds or of cultivations. Many are kept on the makatea in places where the rocky surface forms natural pens. They are fed with coconuts which have matured beyond the stage normally considered suitable for human consumption (though the nuts eaten by English humans are at about the same stage as those eaten by Mangaian pigs).

25. **Pu'ani'o** (Contraction of puaka ni'o = toothed, i.e. horned, puaka.) Goat, Capra hircus. Goats are rather less important than pigs as food animals. The island's goat population is much lower than that of pigs - 594 as compared to 1,611 in the 1966

census. They are mainly kept on the makatea or tethered to browse on the foliage on the borders of inland cultivations.

26. **Pu'atoro** (Contraction of puaka toro = wandering puaka or puaka with projections, i.e. horns.) Domestic Cattle, Bos taurus. Cattle have not been very successful on Mangaia. At the time of fieldwork there were only two cows on the island. Pu'atoro are intimately associated in Mangaian minds with the highly popular tinned corned-beef (punu pu'atoro).
27. **'Aka'oro** (= Cause to run) or **'Oro'enua** (= Runs over land. A Rarotongan term.) Horse, Equus caballus. Horses have been kept for transport rather than food. With the increase in the numbers of trucks and motorbikes on the island, their importance has declined. Nonetheless, they are still used for moving men and materials to and from the plantations. About one household in six still owns a horse.
28. **Kuri** - Dog, Canis familiaris. Small, noisy groups of dogs are to be found in each village, foraging and feeding on domestic scraps. Most have a home compound, and a few are true domestic pets. They are not eaten.
29. **Kiao** (Onomatopoeic.) Domestic Cat, Felis domesticus. Cats are also present in small numbers in all the villages. At the time of their first appearance on Mangaia they were regarded as a dangerous pest, a predator on the newly established chicken population. They were hunted. William Gill (1856:165) records that the first rabbit to be carried on a ship to Mangaia was killed

by an irate deacon in mistake for some kind of cat. Cats are now accepted as compound and household animals useful in destroying rats (23.). Like dogs, they are not regarded as food animals.

Two of the birds listed above as 'manu rere' might also be regarded as 'manu 'angai' in the full sense of that term.

Moa, chickens (6.), as introduced food animals which are kept on domestic compounds and fed with scraps and grated coconut, were regularly listed with the manu 'angai. Indeed, when the descriptive content of the category terms is taken literally, moa are more truly 'fed manu' than 'flying manu'.

Mokora (1.), introduced domestic ducks were formerly kept for food.

Broader Category Relationships and General Comment

Among the birds there are clearly four small covert groupings based on principles of general resemblance, the pairs or triplets of birds concerned being strongly felt to belong together.

These are:

- a) the tropic birds, tavake and pirake (3. and 4.)
- b) the plover and the tattler, torea and kuriri (10. and 11.)
- c) the kau'a and the patangaroa (14. and 15.), possibly both Long-tailed cuckoo.
- d) the shearwaters or petrels, upoa, rakoa and titi (18., 19., and 5.)

Beyond these four groupings, intuitions of resemblance become less systematic. Kara'ura'u (16.) are compared by some to torea (10.), by others to kakaia (7.); the mo'omo'o (8.) is compared in shape to the kerearako (13.), though colour and behaviour are known to be quite different; and so on.

As mentioned earlier, birds may also be talked of in terms of their habitual locations. A possible division of the birds along these lines would be:

- a) Te au manu rere o te 'enua (= Land birds)
mokora (1.) duck/ mo'omo'o (8.) crane/tanga'eo (12.) kingfisher/
kerearako (13.) warbler/ kau'a (14.) and patangaroa (15.)?cuckoos/
manu kavamani (17.) mynah.

(The flying-fox might also be included in this grouping.)

- b) Te au manu rere i runga i te ta'atai (= Shore birds)
kotuku (9.) reef heron/ torea and kuriri (10. and 11.) plover and
tattler.

c) Te au manu rere o te moana (= Birds of the sea)

ngoio (2.) noddy/ tavake and pirake (3. and 4.) tropic birds/ titi (5.) ?shearwater/ kakaia (7.) tern/ kara'ura'u (16.) ?noddy/ upoa and rakoa (18. and 19.) shearwaters/ kota'a (20.) frigate birds/ toroa (21.) ?giant petrel, ?booby.

These groupings cannot be regarded as clearly defined and generally shared categories. Intuitions vary considerably. For many, the shore birds should properly be seen as a sub-grouping of land birds. Finer distinctions of habitual location may be introduced. Some would differentiate birds which merely 'go to sea' from the toroa and kota'a which do not appear on land.

Different aspects of behaviour establish other possible minor groupings. Informants spoke, for instance, of 'te au manu tangitangi'aere i te po', 'birds which cry out in the night', (the shearwaters or petrels, 5. 8., and 19.). Also well known are the birds of the rau manu, the flocks which congregate over shoals of fish (ngoio, 2.; tavake and pirake, 3. and 4.; and kakaia, 7.).

Clearly, some birds (such as the upoa, 18.; kara'ura'u, 15.; and the toroa, 21.) are not generally well known. Knowledge of the toroa, which is seen only by adult male fishermen, is probably the most restricted. Many informants, particularly women, had not heard of it. Interest in birds is limited. Photographs of them aroused much less visible interest than those of fish. The confusion of such relatively common species as plover and tattler also seems to reflect the limited importance accorded these non-food birds.

Those who interpret the 'manu rere' as strictly defined by the rule stipulating that the creature flies may exclude the chicken (moa, 6.), which is not a true flying bird. The flying-fox is regarded as

untypical of the 'manu rere' because of its morphological peculiarities, which make it in some ways similar to the rats, kiore. On the other hand, the rats may be grouped with the mammal domesticates as one of the manu vaevae 'a, the four-legged creatures.

Within the mammal 'manu 'angai' the principal distinction is between those kept for food (pigs, goats, cattle) and those kept for other purposes (horses, dogs, cats).

Summary of Categories

Birds and Flying-foxes - Manu rere

- | | |
|---|---|
| 1. <u>Mokora</u> , Grey Duck | <u>Anas superciliosa</u> |
| 2. <u>Ngoio</u> , Brown Noddy | <u>Anous stolidus</u> |
| 3. <u>Tavake</u> , Red-tailed Tropic Bird | <u>Phaeton rubricauda</u> |
| 4. <u>Pirake</u> , White-tailed Tropic Bird | <u>Phaeton lepturus</u> |
| 5. (See below, with 18. and 19.) | |
| 6. (See below, preceding 22.) | |
| 7. <u>Kakaia</u> , White Tern | <u>Gygis alba</u> |
| (Loosely compared to 3.& 4.) | |
| 8. <u>Mo'omo'o</u> , Spotless Crake | <u>Porzana tabuensis</u> |
| 9. <u>Kotuku</u> , Reef Heron | <u>Egretta sacra</u> |
| 9.1 <u>Kotuku tako</u> | Dark phase |
| 9.2 <u>Kotuku tea</u> | Light phase |
| 10. <u>Torea</u> , Lesser Golden Plover | <u>Pluvialis dominica</u> |
| 11. <u>Kuriri</u> , Wandering Tattler | <u>Heteroscelus incanus</u> |
| 12. <u>Tanga'eo</u> , Kingfisher | <u>Halcyon ruficollaris</u> |
| 13. <u>Kerearako</u> , Reed Warbler | <u>Acrocephalus vaughani</u> |
| | <u>kerearako</u> |
| 14. <u>Kau'a</u> , ?Long-tailed Cuckoo | ? <u>Eudynamys taitensis</u> |
| 15. <u>Patangaroa</u> , Long-tailed Cuckoo | <u>Eudynamys taitensis</u> |
| 16. <u>Kara'ura'u</u> , ?Blue-grey Noddy | ? <u>Procelsterna cerulea</u> |
| (Loosely compared to 7. or 10.) | |
| 17. <u>Manu kavamani</u> , Indian Mynah | <u>Acridotheres tristis</u> |
| 5. <u>Titi</u> , Shearwater or Petrel | sp. of family Procelariidae |
| 18. <u>Upoa</u> , Wedge-tailed Shearwater | <u>Puffinus pacificus</u> |
| 19. <u>Rakoa</u> , Shearwater or Petrel | sp. of family Procelariidae |
| 20. <u>Kota'a</u> , Frigate Birds | <u>Fregata minor</u> , <u>Fregata ariel</u> |

- | | |
|--|---------------------------|
| 21. <u>Toroa</u> , ?Giant Petrel | ? <u>Macronectes</u> sp. |
| ? Brown Booby | ? <u>Sula leucogaster</u> |
| 6. <u>Moa</u> , Chicken | <u>Gallus gallus</u> |
| 22. <u>Moa kirikiri</u> , Flying-fox | <u>Pteropus</u> sp. |
| (6. and 22. are peripheral <u>manu rere</u> .) | |

Rodents – Kiore

- | | |
|----------------------------|--------------------------------|
| 23. <u>Kiore</u> , Rodents | <u>Rattus</u> spp. (originally |
| | <u>R. exulans</u> ?and others |
| 23.1 <u>Kiore ngangao</u> | <u>Rattus rattus</u> |
| 23.2 <u>Kiore paniora</u> | <u>Rattus rattus</u> juveniles |
| | ?et al. |

Domesticated Mammals - Manu 'angai

- | | |
|------------------------------|-------------------------|
| 24. <u>Puaka</u> , Pig | <u>Sus scrofa</u> |
| 25. <u>Pu'ani'o</u> , Goat | <u>Capra hircus</u> |
| 26. <u>Pu'atoro</u> , Cattle | <u>Bos taurus</u> |
| 27. <u>'Aka'oro</u> , Horse, | <u>Equus caballus</u> |
| 28. <u>Kuri</u> , Dog | <u>Canis familiaris</u> |
| 29. <u>Kiao</u> , Cat | <u>Felis domesticus</u> |

CHAPTER 7

MANGAIA'S SMALL-LIFE.

The smaller terrestrial animals discussed in this chapter, as a whole, are considered by Mंगाians to be of little practical value. They enter incidentally into human activities and many are principally thought of as pests. All these creatures may be referred to conversationally as 'manu' or 'mamumanu' or by these terms qualified to suggest sub-categories (e.g. 'manu rikiriki' - 'small manu', or 'manu torotoro'aere' - 'crawling manu'). However, when informants were urged to use these terms definitionally (i.e. were asked "Is this a manu?", "Is a moko a manu rikiriki?", etc.) intuitions varied considerably. Rather than trying to adopt some, possibly misleading, average usage in ordering this chapter, I will discuss the application of the broader category terms at its conclusion.

The animal groups to be considered are: lizards, insects, arachnids, myriapods, and terrestrial and parasitic worms. Mंगाian interest in and attention to these creatures is limited and the terminology is sparse with respect to the large numbers of species present.

The Land Reptiles

1. **Moko** Lizards, species of order Squamata, Lacertilia. Mंगाians recognise two lizard types, their distinction corresponding to that between the geckos (Gekkonidae) and the skinks (Scincidae).

1.1 Moko karara (Some connected the term 'karara' with the chittering noises made by excited Mourning Geckos. It is probably related to the term 'ngarara', applied to reptiles in New Zealand and other parts of Polynesia.) Two gecko species, The Polynesian Gecko, Gehyra oceanica and the Mourning Gecko, Lepidodactylus lugubris.

The larger G. oceanica grows to about 17cm. in length and is dark olive-brown in colour with faint paler markings along the back. Dark L. lugubris are quite similar to small specimens of G. oceanica, though slenderer and with more pronounced pale markings. However, many are yellowish in colouring.

Informants noted the colour differences among moko karara, commenting that the paler ones were more often seen indoors.

But, the two species are not regarded as distinct types.

The Mourning Gecko is more commonly resident in houses where it is particularly active at night, catching insects attracted by lamps. Both species are widely distributed within the island, in trees, shrubs, and rock cavities.

1.2 Mo tukutuku (Mo = Mo'o = Moko. Tukutuku = to retreat gradually or to release. No explanation was offered.) Three skink species, the Blue-tailed Skink, Emoia cyanura the Snake-eyed Skink, Cryptoblepharus boutonii poecilopleurus and Leiopisma noctua.

Slenderer than the geckos, all three species of small skinks are very similar in size and form. There are some differences in colouration, such as the bluish tail of E. cyanura, a yellowish spot

on the head of L. noctua, and pale stripes along the dorsal margins of C. boutonii. Mंगाians acknowledged the colour variation among mo tukutuku. But, again, the species were not systematically distinguished.

The behaviour of the three skinks is also similar. They are common in leaf rubbish on the edges of bush and shrubbery and are seen sunning themselves on rocks, fallen branches, and low bushes, rapidly hiding when disturbed. This sun-basking is contrasted by the Mंगाians with the more retiring behaviour of the geckos in daylight hours.

None of the lizard species attract much attention, though the geckos do feature in spirit beliefs and mythology (see Ch.9 and Ch.10.). Skinks are occasionally 'fished' for by children, using a thread or plant fibre baited with a fly. Otherwise, they are seldom examined closely. This may be a contributing factor in the failure to fully distinguish species. However, it should be noted that the species differences within the two families present are far from striking. It took a close examination of specimens, which demonstrated within-species colour variation, to convince me that there were three skinks on Mंगाia.

All moko are known to lay eggs ('ua moko) which are found in cracks in tree trunks, fallen logs, etc., or among leaf rubbish.

Insects

2. Moko - Caterpillars, Lepidoptera larvae.

The exact relationship of the category 'moko', 'caterpillar', to the category 'moko', 'lizard' is not easy to establish. It is possible

that they should be treated as one continuous grouping. Certainly, when some of my older informants were asked to “Tell me all the moko you know”, they gave mixed lists of caterpillar and lizard terms, without comment on their differences. Both sets of creatures may be referred to as ‘manu rikiriki torotoro’aere’, ‘small creatures that crawl’.

In the application of the term ‘moko’ to both lizards and caterpillars, there are evident parallels with at least some dialects of New Zealand Maori. In fact, the New Zealand materials suggest that the Maori people conceived of a general association between lizards and insects. The category ‘ngarara’ embraces both. Some mythical genealogies show the two groups to have a close common ancestor (e.g. Punga, in the account given by Best, 1923:328). There are even accounts of relationships of transformation between insects and lizards, the lizards developing from, or producing, larvae (Downes, 1936:208). It is tempting to assume some tendency to group together the small terrestrial reptiles and arthropods, on the part of the common ancestors of the Cook Is. and New Zealand Maoris. However, the recorded Mangaian traditions can offer nothing to confirm this. The records of the, now largely forgotten, mythical genealogies are not sufficiently complete to throw much light on these relationships (see Ch.10).

The present-day Mangaians are perfectly well-aware of, and can describe, the obvious differences between lizard and caterpillar, in their morphology, locomotion, feeding habits, etc. Most are aware that, unlike lizards, caterpillars have a role in the development of butterflies. My informants were uncertain why two such slightly similar animals should both be ‘moko’.

Without detailed information on the animal categories employed in the earlier years of the last century, before the influence of Biblical classification and of schooling, it is difficult to go beyond their uncertainty.

Be this as it may, the following terms refer to caterpillars (of which no specimens were taken):

2.1 Moko takiri (= Moko that stretches out). These caterpillars are said to be of mixed colouring, largely brown and white, and to feed mainly upon the ngatae tree, Erythrina sp. They habitually raise the front parts of their bodies and swivel, attempting to cling onto other leaves or twigs, hence 'takiri'. They may be the larvae of the Fruit-sucking Moth, Othreis fullonia, which are known to favour Erythrina.

2.2 Moko anu'e (?Related to 'anu'e' = the staghorn fern, found on the central hills.) Two different descriptions were offered of (a) green and black caterpillars feeding in trees (unspecified), or (b) large caterpillars with horn-like projections at their rear and red and white ring markings on their heads, found near the taro swamps and on the taro itself. The latter description strongly suggests the caterpillar of a sphinx moth, sp. of family Sphingidae (see iriano, 4.).

2.3 Moko matie (= Green moko). These all-green caterpillars are said to be fairly common on the nono tree, Morinda citrifolia.

2.4 Moko rere (= Jumping moko). Moko rere are capable of unnerving leaps.

None of the four category terms just given appeared with great consistency in informants' listings. 'Moko matie' and 'moko rere' may depend upon the ad hoc use of descriptives. On the other hand, the terms 'moko takiri' and 'moko anu'e' have obviously been fixed in use over a considerable period. They were better known to my older informants (those 55 and over). The Mangalans are, of course, well aware that there are many caterpillar types for which they have no ready-made terms. As a general term for caterpillars, 'moko' is now, sometimes, replaced by the coined 'katapira'.

3. **Pepe/pepepepe** - The Butterflies and Moths, excluding Sphinx Moths. This category embraces all but the very largest of Mangaia's Lepidoptera. As with the distinction between - 'manu' and 'manumanu' that between 'pepe' and 'pepepepe' is a matter of size, the reduplication in the second term carrying the implication of smallness. The pepepepe are, then, the butterflies and moths with wingapans of less than about 25mm. Needless to say, individual judgements about the appropriate size for a pepepepe do vary, and the term 'pepepepe' is applied with greatest certainty to the Microlepidoptera, the minute, drab moths which abound in the shrubbery and rain down ceaselessly around the house lights at night. At the upper end of the size range for pepepepe, the little, blue butterfly of the interior of the island, Zizina otis mangoensis, with a wingspan between 2 and 3cm., is at about limit, a pepe for some, pepepepe for others.

Mangaiaans acknowledge that there are many pepe and pepepepe types but have no shared and consistent terminology

to differentiate them. Only two terms for pepe types seem to be widely shared. These distinguish between certain larger butterflies by reference to their colours.

3.1 Pepe renga (= Yellow pepe). Some informants identified as pepe renga the Monarch Butterfly, Danaus plexippus, which is present on the coastal strip and makatea in the latter part of the year. The orange or yellow wings of this butterfly are edged and lined in black. However, it was also suggested to me that there was a 'true pepe rengarenga' an all-yellow butterfly. I saw none answering this description.

One informant in his eighties (Tiriamal of Te Makatea) claimed that, in his youth, the chrysalis ('ua pepe) of the pepe renga, being very shiny, was used as an ear-ornament by children.

3.2 Pepe tako (Black pepe). I have only seen the dark butterfly identified as pepe tako in flight. Fast moving, with blue and white markings on the wings, it was almost certainly the Blue Moon Butterfly, Hypolimnys bolina, which has an extensive Pacific range.

Pepe tako and pepe renga appear in Manganian myth as helpers of the god Rongo (see Ch.10).

Amongst the many species simply referred to as 'pepe' are: Utetheisa pulchelloides/marshallorum, Chasmodon tibialis, Achaea janata, Spodoptera litura, Mocis trifasciata, Argina cribraria - (Arctiidae, Hypsidae, and Noctuidae).

4. **Iriano** - Sphinx Moths, spp. of family Sphingidae, Gnathothlibus erotus eras and others. Having wingpans

of 7 or 8cm., these are the largest of Mangaian moths. They were noted and illustrated by Gill in the last century (1876b:312). He observed:

At dusk, in the warm season, these insects are very numerous, coming out of their hiding places and entering the dwellings of the natives, attracted by the light inside.

The iriano continue to be occasional visitors to Mangaian homes, drawn by light and, it is said, by the sweet-smelling plants grown about the houses.

It was sometimes claimed that there were two kinds of iriano, differing in colour. Certainly, more than one sphinx moth species is present. Commonest is the dark brown G. erotus eras, which has a characteristic buzzing flight. (The old Rarotongan term for a sphinx moth, 'mu'u', also means 'to make a humming or murmuring noise'.) I failed to obtain specimens of the second species seen, a pale grey-brown sphinx moth, almost silent in flight. Agrius convolvuli is found in Rarotonga, and may well be present in small numbers on Mangaia.

Two informants maintained that iriano come from 'a thing in the ground' which they also termed 'iriano'. The description suggested a sphinx moth pupa. Many species do pupate in the ground.

Gill (1876b relates a tradition that iriano were, at one time, used in acts of vengeance. Two or three moths, with smouldering strips of tapa cloth tied to their long probosces, were released close to the house of an enemy. The moths were likely to land on the thatch of the house, setting fire to it. This

curious manipulation is the only recorded traditional use of an insect other than in omen-taking (for which see Ch.9).

Iriano are acknowledged to be very like pepe (3.), but are generally held to be substantially different to other butterflies and moths. Their large size, cigar-shaped bodies, and swept-back wings do contribute to a very distinctive appearance.

5. **Iva** - Dragonflies (Anisoptera) and Damselfies (Zygoptera), species of Odonata. Informants spoke of two or three types of iva, differing in size and colour. The clearest distinction was drawn between the small, slender damselfies, known to be found only in the area of the taro swamps (an Agriocnemys sp. was collected), and the larger dragonflies which are also seen on the makatea and coastal strip (a Diplacodes sp. and Pantala cf. flavescens were collected). Some informants referred to colour differences among the larger iva, and related these to their distribution - red, makatea and inland; brown, also on the coast. These observations seem to reflect the differences between the Diplacodes and the Pantala species.

6. **Uru'apuka** - Large Green Grasshoppers, spp, of Orthoptera, family Tettigonidae. The term 'uru'apuka' was applied to specimens of two species of long-horned grasshoppers collected from the coastal strip and makatea, Conocephalus saltator and Xiphidiopsis ?lita. These will enter houses, particularly at night, and have traditionally been associated with the bringing of sickness to the household (see Ch.9). Possibly, some short-horned grasshoppers (Acrididae) may be included among the uru'apuka. Those features stressed as characteristic of the

members of this category are simply large size (length 5cm.+), predominantly green colouring, and a tapering elongation of the rear of the body which is contrasted the comparatively compact body of the crickets.

7. **Kereteki** (Some now believe that 'kereteki' is a coinage from 'cricket'. However the word does appear in songs of supposedly pre-contact origin, and occurs as a personal name in traditional history. It may well be an indigenous onomatopoeic term.)
Ground Crickets, spp. of Orthoptera, family Gryllidae, of dark colouring. All kereteki are said to be tako black or intensely dark. All specimens taken were of the common and widely distributed Pacific Ground Cricket, Teleogryllus oceanicus. The chirping (tangi) of these crickets is a familiar part of the night scene. Found in all but the driest, most rocky or bush-covered parts of the island, they are particularly common in the base of the dense weed mats at the rim of the taro swamps, where they are often seen in substantial numbers during clearing operations.

8. **Vava** - Bush Cricket, a sp. of family Gryllidae. A slightly damaged specimen of this elusive insect was provisionally identified as an Ornebius sp., but even this genus identification is far from certain.

For some Manganians the vava is not an animal; it does not have a physical form. Rather, it is a wandering spirit (tupapaku) which makes its presence known with a sharp, metallic chirping sound heard overhead at night, from trees or house roofs (see Ch.9). However, many recognise that the noise is produced by a

creature 'like the kereteki' (7.) but smaller and yellowish in colour.

Affinities are recognised between uru'apuka (6.), kereteki (7.), and vava (8.) both in bodily form and in leaping locomotion.

9. **E'e** or **E** - Coconut Stick Insect, Graeffea crouanii (Phasmatidae), a major traditional pest of the coconut palm. Two types of e'e were described, one of moderate size, brown-green in colour, one much larger and green. With the collection of specimens, these proved to correspond to the male and female forms of G. crouanii, which have body lengths of about 7 and 11.5 cm. respectively.

These insects can be extremely destructive of the growing shoots and leaves of the coconut tree. The introduction of the mynah bird (Acridotheres tristis, Ch.6-17) into the Southern Cooks was aimed specifically at their control.

10. **Kokoroti** and 11. **'Ue'ue** - Cockroaches, spp. of Orthoptera, family Blattidae and family Blaberidae.

Many Mangaian treat the terms 'kokoroti' and 'ue'ue' as synonyms, the latter being an older term and 'kokoroti' a relatively modern coinage from English. Nonetheless, it was sometimes argued that there was a 'true ue'ue' only to be found in areas of inland bush, and which was darker and more rounded in the body than the kokoroti common in the villages. No certain identifications were made of this type of 'ue'ue', though Pycnoscelus surinamensis and Platyzosteria (Melanozosteria) nitida were both tentatively identified as such by different

informants. The commonest domestic cockroaches are the Periplaneta spp., with their large, flying adults. Periplaneta brunner was collected. P. australasiae and P. americana are probably also present. These infest pit latrines and are highly active at night around kitchens and cooking shelters, feeding on food scraps.

12. **Kara'unga** - Earwigs, spp. of Dermaptera. The term 'kara'unga' was applied to specimens of the common earwig Chelisoches morio, but is probably applicable to several other earwig species. Kara'unga were simply described as 'small, black, crawling creatures among the weeds (ngangaere)'. Their outstanding feature, from my point of view, was the mandible-like cerci (anal forceps), with which they are said to pinch. One informant used the term 'pakoti' (=pincers/that which cuts or clips) to refer to C. morio.

13. **Rango** - True Flies, Wasps and Bees, spp. of larger Diptera and Hymenoptera. The 'rango' category embraces all larger true flies (length 5mm.+, in suborders Brachycera and Cyclorrapha) and most wasps and bees. The very plentiful house flies and flesh flies (Muscidae and Sarcophagidae) may be regarded as typical rango but the use of the term, without any adjectival qualification, was extended sufficiently to cover certain slender-bodied, non-stinging wasps (Evania sp. collected). No attempt was made to systematically collect the many species of rango, but the explicit internal divisions of the category can be indicated on the basis of a few examples.

13.1 Rango auika (= Blue rango) or **Rango re'are'a** (= Blue-green rango) or **Rango mumu** (= Buzzing rango) or **Rango pu'atoro** (= Cattle rango. The loud buzzing of the flies is compared the lowing and bellowing of cattle). Bluebottle Blowflies, Chrysomya rufifacies and Chrysomya megacephala were collected. These flies are noted for their iridescent abdomens, shining in metallic blues and greens, and for their loud, buzzing flight. The rango auika are known to be particularly fond of decaying flesh and are held to be principally responsible for the iro, maggots, which appear on meat.

13.2 Rango ngangaere (= Rango of the weeds or undergrowth). The precise reference of this term is not clear to me. For many, it means, simply, the kinds of flies that are disturbed and settle on the body as one clears or pushes through the undergrowth. How, or whether, these differ physically from other flies is far from certain. However, some informants believed that there was a 'true rango ngangaere', a yellowish fly (rango rengarenga). No specimen was ever identified with certainty as rango ngangaere, though one informant did half-heartedly suggest that a pale sarcophagid fly might be an example.

13.3 Rango pao (= Stinging/striking rango) or **Rango patia** (= Stinging/stabbing rango). Large, stinging wasps, and some bees. All rango pao have a sharply tapering abdominal segment, which is taken as an indication of their stinging ability. The most familiar of the rango pao are the large social wasps, Polistes sp. (Vesplidae). Also included in this category were wasps of two species of the family Eumenidae and a bee, Chalicodoma sp.

(Megachilidae). Though all reasonably similar in body shape, these species vary in colouring from strong black and yellow stripes to completely black.

Knowledge of the habits of these insects is very limited. However, the large, hanging nests of the Polistes sp. are well-known, sometimes being formed under house-eaves. The larvae, iro, found in such nests are considered suitable bait for fresh-water eels. (The terms or 'iro' or 'iro rango' are applied generally to fly, wasp, and bee larvae. Many informants were familiar with the development:

iro —————→ rango

Whether this was part of traditional Manganian knowledge of the insects, it is not possible to say.)

13.4 Rango tepura ('tepura' is a missionary coinage from the Hebrew 'deborah' = 'bee'. The Rarotongan term 'rango meri', being coined from the Latin 'mel' = 'honey', is also in use.) The Honey Bee, Apis mellifera. These bees were brought to Mangaia in the nineteenth century for honey production. A few hives are still kept in the villages, and wild colonies have formed. They are thought to be rather less aggressive than the rango pao (13.3). Nonetheless, smoke is used as a stupifying agent in order to avoid stings when removing combs from hives.

Though, when faced with specimens, Manganians were clearly perfectly capable of recognising further differences between species and families, no importance was attached to these

distinctions, most of the insects of this group being known solely as 'rango'.

The two following categories, 'u'u' (14.) and ongaonga (15.) are said to be closely related to the rango.

14. 'U'u' - Wood-boring Bee, Lithurgus sp. (Megachilidae) and Mud-cell Wasp, Pison sp. (Sphecidae). The principle referent of the term 'u'u' is a black leaf-cutting bee, Lithurgus sp., which will burrow extensively in wood. These bees may attack house timbers and have even been known to damage canoes. Some informants believed that 'u'u' fed on wood. In appearance, they were often compared to the honey bee, rango tepura (13.4). The white larvae found in the tunnels created by the bees are known either as 'u'u' or as iro.

Descriptions of 'u'u' invariably referred to a wood-borer. But, in the identification of living specimens, the term was also applied to a sphecid wasp, Pison sp., which constructs small mud-cells for its larvae. These cells are frequently to be found in the corners or crevices within houses and on furniture. The wasp, although black like the bee, is considerably smaller and more slender. An important similarity is in the sounds they produce. Both make muffled buzzing noises from within their tunnels or cells. Such sounds are always confidently attributed to 'u'u'. It was sometimes suggested that the term 'u'u' might be onomatopoeic.

15. **Ongaonga** - Lesser True Flies, smaller species of Diptera, principally of family Chloropidae. The ongaonga are flies of less than about 5mm. in length. Those collected were two species of the genus Cadrema, which are often seen on fallen and rotting fruit. Informants claimed that ongaonga are particularly attracted to pineapple. (The very first answer I received to the question "What is an ongaonga?" was, "They are the little things that fly into our pineapple beer." !) Other ongaonga are commonly seen near the shore at night, when they are attracted to the lights of those going 'torch'-fishing. These may well include small flies of several families.
16. **Namu** - The Mosquitoes, spp. of Diptera of family Culicidae.
- The problem of mosquito-borne disease, filariasis and, more recently, dengue fever, has prompted the spread of public health information concerning mosquitoes. Mंगाians have been exposed to more non-indigenous knowledge of mosquitoes than of any other group of insects. But, they have clearly always been regarded as a pest. Myth tells that mosquitoes were introduced in the hollow ear-ornaments of a woman called Veve, two of whose children were stung to death when they escaped (Gill, 1876a:127). Traditional precautions against these insects included the use of smoke from a smouldering ironwood log to drive them away from the house.
- According to the public health authorities, the commonest mosquitoes of the Southern Cooks are Aedes aegypti, Aedes polynesiensis, Culex fatigans, Culex annulirostris, and a Uranotaenia sp. Two namu types are distinguished in the Mंगाian vocabulary.

16.1 Namu vaevae roa/roroa (= Long-legged namu). Long-legged, night-biting Culex spp.

16.2 Namu ka'ati/kakati (= Biting namu), or **Namu vaevae potopoto** (= Short-legged namu). These are mainly day-biting, shorter-legged Aedes spp. Most common around the taro swamp, in the moister bush of the interior, the swarms of these smaller mosquitoes are more overt in their attacks upon the person than their night-biting relatives. Several informants commented that the mosquitoes seen when working inland had striped legs (vaevae toretore), references to the legs of the Aedes spp. which have dark and light bands.

The term 'namu 'eke'eke' (= filariasis namu) is also used, different informants equating it with one or other of the category terms just given. It is evidently founded in vague recollections of public health teaching. (Elephantiasis, which results from the intense micro-filarial infestation of the lymph system, was traditionally linked with infringements of tapu, such as intrusion upon a sacred site.)

The larvae of all mosquitoes are known as 'ro'ero'e', a term also applied to other thread-like aquatic larvae, and, possibly, to some small and slender terrestrial worms.

The Rarotongan dictionary defines 'ro'e' as:

- n. the quivering, slender, wormlike points at which existence begins in animal or plant life. (Savage, 1962)

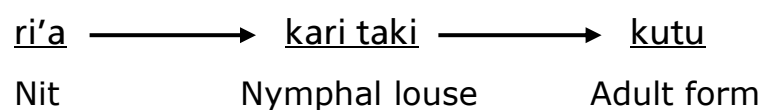
The thread-like rootlets of plants may also be ro'ero'e. In Mangaian myth, Te-aka-ia-ro'e, 'The root of ro'e', is the spirit at the root of existence (see the genealogy of major supernatural beings, Ch.10). If Gill's interpretation (1876a:1-2) is correct, plant and animal images combine in this conception of the origins of the cosmos, both rootlet and minute animal representing a kind of minimal existence.

Present-day Mangalans are well-aware of the relation of the ro'ero'e larvae to the adult mosquitoes. It is not, now, possible to say whether this represents a survival of traditional knowledge or if it is the product of decades of health education.

7. **Kutu** - Body parasites of men and animals, Lice and Fleas, spp. of orders Mallophaga, Anoplura, and Siphonaptera. The kutu are external parasites of men, other mammals, and birds. Four types are recognised, distinguished in the terminology by reference to their usual hosts.

17.1 Kutu or Kutu tangata (= Human kutu). Human Louse, Pediculus humanus, the commonest form being the head louse Pediculus humanus capitis, which is also known as 'kutu pa'uru' (= head kutu).

After hatching from the nit, or egg, the head louse nymph undergoes three moults before achieving full adult size and form. Mangaian give the following developmental sequence:



The nymphal karl taki or karl take are less elongated in the body than the fully developed kutu. An intimate knowledge of all louse development stages is gained in de-lousing sessions. Relatives and friends, especially women, will engage in mutual de-losing, though most of this activity goes on within households.

17.2 Kutu puaka (= Pig kutu). Hog Louse. A single specimen of Hematopinus suis was collected. Mainly seen when pigs are being prepared for cooking, kutu puaka are known to be larger and rounder than their human counterparts.

17.3 Kutu moa (= Chicken kutu). Poultry Lice, Menopon gallinae and Goniocotes gallinae were collected. Again, the lice are seen mainly during the preparations for cooking, when chickens are plucked.

17.4 Kutu kuri (= Dog kutu). Fleas, not identified, but probably a Ctenocephalides sp. Though it was recognised that the very small, jumping kutu kuri differed markedly from the other kutu, their inclusion in the category was justified in terms of their parasitic behaviour, in clinging to and feeding upon the body of their host.

18. Ro - Ants, spp. of Hymenoptera of family Formicidae. The term 'ro' was applied to all ants seen on Mangaia. I have not attempted to identify and record the many ant species to be found there. (16 species have been recorded for Rarotonga; Taylor, 1967. I have no doubt that future studies will show the

number of species on Mangaia to be at least equal to this figure.) However, two species of ant from Mangaia have been previously identified - Pheidole megacephala and Paratrechina vaga. The Pheidole species is a common ground ant and often enters houses. Ants within dwellings are a fact of Mangaian life. Any unprotected food is soon ant-covered.

Mangaian awareness of considerable variation in the size, colour, and form of ro has not led to any very systematic differentiation of types. However, the following three sub-categories were distinguished with some consistency:

18.1 Ro pererau (= Winged ro) or **Ro rere** (= flying ro). Winged forms of any ant species.

18.2 Ro ka'ati (= Biting ro). Informants familiar with Rarotonga claimed that the 'true' ro ka'ati were more usually seen on that island. They were said to be pale in colour (ro rengarenga = yellow ro) and to have a painful bite. The description suggests the Fire Ant, Solenopsis geminata, which has been recorded on Rarotonga. But, on Mangaia itself, the term 'ro ka'ati' was also applied by some to large-headed ants with sizeable mandibles, such as the soldiers of Pheidole megacephala. These are more impressive than aggressive as far as human beings are concerned.

18.3 Ro rikiriki (= Small ro). One or more unidentified species of very small, fast-moving ants, seen mainly on the coastal strip.

I was also, occasionally, presented with the distinction ro toa/ro 'ua, i.e. male ant/female ant. But there is little knowledge of ant nests and of the structure of colonies. The one informant who selected specimens of 'male' and 'female' ants for me in fact identified large soldiers as 'male' and the smaller workers as 'female'. It may well be that the male/female distinction stems from rather imperfectly remembered school teachings.

19. **Potipoti** (= Very small). Springtails, spp. of Collembola. Potipoti are commonly seen when coconuts, logs, and other pieces of bush-floor debris are shifted, revealing the small, dark, leaping insects on the soil surface. A few informants also spoke of pale potipoti which they had seen in the sand near the shore. These could be sand-hoppers or sand-fleas, amphipod crustaceans of the family Talitridae.
It should also be noted that some Mangalans use 'potipoti' as a catch-all term for unfamiliar, small, non-flying insects. As one man put it, 'When I don't know what else to call it, I say it is a potipoti'.
20. **Patapata** (= Small and globular - the reduplicative diminutive of 'pata', 'a rounded seed pod/a marble'). Aphids, spp. of Homoptera of family Aphididae. The principle patapata are the small, green aphids which infests taro plants and are a recognised pest of that crop.
21. **Tunga** – Sweet-potato borer and other boring larvae. The tunga of my informants was a pest of the ku'ara, the sweet-potato *Ipomoea batatas*. It was said to be like an iro (a maggot or

wasp larva, see 13.) which bored into the tubers. No specimens were collected, but this tunga is most probably the larva of the Sweet-potato Weevil, Cylas formicarius (Curculionidae), a recorded agricultural pest of the Southern Cooks. Gill (1876b:152) gives 'tunga' as a term for a worm-like creature burrowing in base of the sugar-cane. It seems reasonable to suppose that this might have been the larva of the Sugar-cane Weevil, Rhabdoscelus obscurus (Curculionidae). 'Tunga' may be used generally for any small, destructive, burrowing grub.

22. '**Miri-bug**' (from 'mealy-bug'). Mainly Pineapple Mealy-bug, a species of family Pseudococcidae. With the growth of pineapple production on Mangaia, a mealy-bug pest of the pineapple, ?Dysmicoccus brevipes, has forced itself upon the attention of the growers. 'Miri-bug' has joined patapata (20.) and tunga (21.) as an agricultural problem.

Arachnids: Spiders

23. **Tukutuku ra'o nui** ('ra'o' = 'scrotum and or similar sac and contents; 'nui' = 'big'.) Spiders, spp. of Araneida. The core members of this category are the Crab or Wolf Spiders of the family Sparassidae, specifically, Heteropa venatoria, which is frequently seen in Mangaian houses. These may be observed carrying large egg sacs beneath the body. It is these which are the ra'o nui.

The spider fauna is rich and varied, but local interest in it is so minimal that I did not attempt to make a full record. The

individuals questioned could offer descriptions of different spiders they had seen, but there was no systematic, shared sub-categorisation of the tukutuku ra'o nui.

Gill's translation of a funeral chant from the early nineteenth century renders 'tukununga' as 'spider' (1876a:277). I did not find this term in the modern vocabulary, though it is evidently related to 'tuktuku'. In recent years, 'tipaita', coined from 'spider', has gained some currency.

The webs of spiders are known as or as 'pungaverevere' or as 'upenga' (= fishing net - a reference to their use in capturing insects).

<u>'Eia e manu e pungaverevere</u>	The creature is entangled in the web
<u>Ei 'ei nuku na manu o te rangi</u>	Many creatures of the sky shall be entangled.

(Arokapiti's Dirge for Ruru. Gill, 1876a:277.)

Arachnids: Scorpions

24. **Tikopio** (coined from 'scorpion'). Species of Scorpionida. A small, black, apparently harmless scorpion (species not determined) is found beneath logs and other bush debris. I recorded no truly Manganian term for this creature. F.W. Christian's Manganian vocabulary (Christian, 1924) translates 'kara-unga' as 'the scorpion'. In my experience 'kara'unga' was applied only to earwigs (12.). It is possible that, earlier this century, the term was also used to refer to scorpions but, on the

other hand, as a whole, Christian's zoological identifications are less than reliable.

Myriapods

25. **Veri** - Centipedes and Millipedes, spp. of Chilopoda and Diplopoda. Though the term 'veri' has already appeared in Ch. 5 (e.g. see veri kakao, bristleworms, Ch.5-60.), the myriapods are, undoubtedly, the 'true veri'. Two types are distinguished in the terminology.

25.1 **Veri tara** (= Spiny veri). A large, yellowish centipede with a painful, poisonous bite, a Scolopendra sp. (Scolopendramorpha). It is mainly active at night, being found during the day beneath stones and pieces of wood, and in leaf debris. This animal has strong traditional associations with the world of spirits (see Ch.9).

25.2 **Veni tinito** ('tinito' is a fairly modern coinage for 'Chinese'. Informants had no idea why these veri should be 'Chinese', though that was the only interpretation of 'tinito' offered. It is quite likely that there is an older meaning, no longer recalled, based on 'tini' = 'many'. '**Veri tinivae**' = 'many-legged veri', is an equivalent.) Predominantly brown or black millipedes up to about 4cm. in length, much smaller than veri tara. Trigoniulus ?lumbricinus (Julidae) and Orthomorpha ?coarctata (Panadoxsomatidae) were collected. Unlike the veri tara, they

are, and are considered, harmless. They are particularly common under loose tree bark.

Worms: Terrestrial and Parasitic

26. **Toke/Toketoke** - Worms, primarily spp. of Annelida, class Oligochaeta. The principal toke and toketoke (as usual with reduplication, the distinction between these is one of relatively larger and relatively smaller size) are the Oligochaete earthworms. These are sometimes also spoken of as 'toke 'enua' (= land or soil toke). The descriptions given of a long but thin toketoke found in the sandy areas near the shore suggest a Polychaete worm, possibly a threadworm of the family Arabellidae or of the Lumbrineridae.

In addition, the term 'toketoke' is applied to worm parasites of the intestine. Descriptions suggest Nematoda, but the category may include some Cestoda, tapeworms.

There is also a skin parasite:

- 26.1 **Toke matau** (= Hook toke). Hookworm, sp. of family Ancylostomidae.

Earthworms are occasionally used as bait for fresh water eels.

Slugs and Snails might well have been included in this chapter, some informants describing them as 'manu rikiriki torotoro'aere', 'small

manu that crawl'. They have, however been dealt with in Ch.5, on the basis of their acknowledged resemblance to marine molluscs and the part played by snails in women's shell-collecting activities.

Broader Category Relationships and General Comment

In considering more generally the categorisation of Mangaia's small-life we must again look at the distinction between manu and manumanu, first examined in Ch.3. As explained there, though there is general agreement upon their relatively small size, there is considerable variation in individuals' conceptions of manumanu. There has been a convergence between the the category and the introduced category of 'insects'. But the application of the term 'manumanu' to all insects is rare. More usually, it is used to refer only to those at the lower end of the size scale. There was disagreement between informants as to whether all manumanu fly or whether, as most assumed, there were also crawling manumanu. With differing size tolerances and differing ideas concerning the role of locomotion in limiting the category, informants' lists of manumanu varied markedly. For instance compare:

Informant A: Ongaonga (small flies, 15.), namu (mosquitoes, 16.).

Informant B: Ongaonga, namu, rango (flies, wasps, etc., 13.),
rango tepura (honey bee, 13.4), pepe (butterflies and
 moths, 3.), ro (ants, 18.), ngau (slug, Ch.5-30.).

Both might have been urged to add to their lists, but the example does reflect real difference in the number and variety of creatures included within the category. Informant A definitely rejected the notion that the large butterflies and moths or slugs could be manumanu.

As mentioned in Ch. 3, for some Mंगाians the category 'pepe' (butterflies and moths) has some members which are manumanu and larger members which are not. Many of those who made a distinction between 'pepe' and 'pepepepe' equated this with the distinction between the larger forms and the true 'manumanu' (the pepepepe). All included in their 'manumanu' category a host of otherwise unidentified small creatures, some of which were felt to be very good examples of the category. For instance, the small whitefly, Bemisia sp., was widely accepted as a 'true manumanu', fulfilling the strictest requirements for category membership.

There is not, necessarily, a smooth transition from 'manu' to 'manumanu' in the progression down the animal size scale. Although the lizards, moko, were widely accepted as 'manu', it was not unusual for larger insects (iriano, 4.; iva, 5.; uru'apuka, 6.; etc.), myriapods (veri, 25.), and arachnids (tukutuku ra'o nui, 23.; tikopio, 24.) to be denied the status either of 'manu' or 'manumanu' (in response to direct questioning of the form "Is X a manu?"). They were, however, more readily referred to as 'manu rikiriki'. The addition of the epithet 'rikiriki', 'small', apparently negated some of the bird and mammal connotations which inhibited the application of the term 'manu' to the island's small-life. So, one possible ordering is:

uncommon usage. When, during fieldwork, general discussion followed formal questioning of the form 'Is X a Y?' many apparent inconsistencies emerged. One informant even succeeded in referring to worms, toke as 'manu' in the course of apologising for being unable to select the correct general category in which to place them. The subtleties of context must not be underestimated.

It should, again, be emphasised that the island's small-life is, as a whole, of little interest to its inhabitants. The category terms given in 1. to 26. above cover a tiny proportion of the smaller fauna. It is the immensely rich and varied insect fauna, so visible to the outside observer, that seems peculiarly under-represented in the available Manganian terminology. Most common insects were obviously recognised by informants, but many were not specified further than 'manumanu' or 'manu rikiriki'. They were said to have no 'names' - 'Are to matou 'ingoa', 'We have no names (for them)'. It was sometimes suggested that 'our ancestors may have had names' and that these had been lost. It is, indeed possible that the terminology has become impoverished, but there is little direct evidence of this. Those insect names appearing in Gill's nineteenth-century records are, in general, remarkably consistent with those in use today, though, admittedly, they do constitute a rather limited set. Certainly, there has been no extensive replacement of indigenous terms by those of the English language. Another suggestion was that creatures remained 'nameless' because they were of little importance - 'puapinga kore', 'of no use or significance'. The existing terminology does seem to indicate a pragmatic bias. As a rule, creatures with 'names' ('ingoa') are either relatively large, or otherwise visually or audibly striking (e.g. pepe - butterflies, iriano - sphinx moths, iva - dragonflies and damselflies, kereteki - crickets, etc.) or they impinge

directly upon human beings and their activities as pests or dangers. Needless to say, there are exceptions to the rule. The potipoti springtails, for instance, are small and relatively inconspicuous, and are not pests. On the other hand, the larger, noise-producing click-beetles, species of Elateridae, which I heard and collected inside houses were surprisingly little-known and are not 'named'. Of course, when informants were attempting to identify specimens of 'manumanu' or of 'manu rikiriki' which could not be further specified within the limitations of the terminology, they would make use of limited comparisons. The animals would be loosely compared to more familiar 'named' creatures. Thus, for instance, lacewings, Chrysopa spp., were said to be rather like ro rere, flying ants.

Though not reflecting any explicit Manganian distinctions, the small animal pests can conveniently be divided into three groups:

- a) Pests of the person, directly affecting the body. Rango (flies, 13.), namu (mosquitoes, 16.), kutu (lice, 17.), and, more painful and dangerous, rango pao (wasps, 13.3), veri tara (centipedes, 25.1).
- b) Pests spoiling food and drink, or invading living space and damaging structures.
Rango (flies, 13.), ongaonga ('fruitflies', 15.), kokoroti (cockroaches, 10.), ro (ants, 18.), and 'u'u' (boring bee, 14.).
- c) Pests of food plants or agricultural produce. Some moko (caterpillars, 2.), e'e (coconut stick-insect, 9.), patapata (aphids, 20.), tunga (weevil larvae, 21.), and 'miri-bug' (pineapple mealy-bug, 22.).

Possibly, the grasshoppers, uru'apuka (6.), should be included in group (a), since it is considered by some Manganians to be a creature which carries sickness (see Ch.9).

I have heard the expression 'manu kino', 'bad manu' used of members of all three groups, in reflections upon their destructive or irritating activities. Insects such as aphids, patapata or the crop-damaging weevil larvae, tunga, are very strongly associated with their pest role. After weeks of asking questions about manumanu and manu rikiriki and obtaining lists of these, it was not until I asked directly about crop problems that these two creatures were first mentioned to me.

Summary of Categories

Lizards

1. Moko, Geckos and Skinks

1.1 Moko karara

spp. of family Gekkonidae,
Gehyra oceanica and
Lepidodactylus lugubris

1.2 Mo tukutuku

spp. of family Scincidae
Cryptoblepharus boutonii,
Leiopisma noctua and
Emoia cyanura

? The status of this category linkage is uncertain.

Insects

2. Moko, Caterpillars

2.1 Moko takiri

Lepidoptera larva

2.2 Moko 'anu'e

Lepidoptera larva

2.3 Moko matie

Lepidoptera larva

2.4 Moko rere

Lepidoptera larva

Link of development.

3. Pepe/pepepepe, Butterflies and most Moths

spp. of Lepidoptera

3.1 Pepe renga

Danaus plexippus

3.2 Pepe tako

?Hypolimnas bolina

4. Iriano, Sphinx Moths

spp. of family Sphingidae,
Gnathothlibus erotus eras et al.

5. Iva, Dragonflies and Damselflies

spp. of Odonata,
Pantala sp., Diplacodes sp.,
Agriocnemys sp., ?et al.

6. Uru'apuka, Larger Grasshoppers

spp. of family Tettigonidae,
Conocephalus saltator,

7. <u>Kereteki</u> , Ground Crickets	<u>Xiphidiopsis ?lita ?et al.</u>
8. <u>Vava</u> , Bush Cricket	<u>Teleogryllus oceanicus</u> ,
9. <u>E'e</u> or <u>E</u> , Coconut Stick	?and other Gryllidae
Insects	? <u>Ornebius</u> sp.
10. <u>Kokoroti</u>	<u>Graeffea crouanii</u>
and Cockroaches	spp. of family Blattidae,
11. <u>'Ue'ue</u>	<u>Periplaneta</u> spp.,
	<u>Platyzosteria nitida</u> ,
	<u>Pycnoscelus surinamensis</u> ,et al.
12. <u>Kara'unga</u> , Earwigs	spp. of Dermaptera,
	<u>Chelisoche</u> mono et al.
13. <u>Rango</u> , Large True Flies,	Larger Diptera (Brachycera and
some Wasps and Bees	Cyclorhapha) and Hymenoptera
13.1 <u>Rango auika</u>	<u>Chrysoma</u> spp. et al.
13.2 <u>Rango ngangaere</u>	spp. of Diptera
13.3 <u>Rango pao</u>	<u>Polistes</u> spp., <u>Chalicodoma</u> sp.,
	<u>Eumenid</u> spp.
13.4 <u>Rango tepura</u>	<u>Apis mellifera</u>
14. <u>'U'u</u> , Wood-boring Bees	<u>Lithurgus</u> sp., <u>Pison</u> sp.
and Mud Wasps	
15. <u>Ongaonga</u> , Small True Flies	<u>Cadrema</u> spp., et al.
16. <u>Namu</u> , Mosquitoes	spp, of family Culicidae
16.1 <u>Namu vavae roa</u>	<u>Culex</u> spp.
16.2 <u>Namu ka'ati</u>	<u>Aedes</u> spp.
17. <u>Kutu</u> , Lice and Fleas	spp. of Mallophaga, Anoplura,
	and Siphonoptera Gonlocotes
17.1 <u>Kutu tangata</u>	<u>Pediculus humanus</u>
17.2 <u>Kutu puaka</u>	<u>Hematopinus suis</u>
17.3 <u>Kutu moa</u>	<u>Goniocotes gallinae</u> ,
	<u>Menopon gallinae</u> et al.

17.4 <u>Kutu kuri</u>	? <u>Ctenocephalides</u> sp.
18. <u>Ro</u> , Ants	spp. of family Formicidae
18.1 <u>Ro pererau</u>	Formicidae, flying forms
18.2 <u>Ro ka'ati</u>	? <u>Solenopsis geminata</u> et al.
18.3 <u>Ro rikiriki</u>	Unidentified small Formicidae
19. <u>Potipoti</u> , Springtails	spp. of Collembola ?and
?and Sandhoppers	Amphipoda (family Talitridae)
20. <u>Patapata</u> , Greenfly	Aphid spp.
21. <u>Tunga</u> , Sweet-potato Borer	? <u>Cylas formicarius</u> et al.
larvae and other borers	
22. ' <u>Miri-bug</u> ', Pineapple	<u>Dysmicoccus brevipes</u>
Mealy-bug	
(20.-22. are loosely associated as major agricultural pests.)	

Spiders

23. <u>Tukutuku ra'o nui</u> , Spiders	spp. of Araneida, especially <u>Heteropa venatoria</u>
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Scorpions

24. <u>Tikopio</u> , Scorpion	sp. of Scorpionida
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Myriapods

25. <u>Veri</u> , Centipedes and Millipedes	spp. of Chilopoda and Diplopoda
25.1 <u>Veri tara</u>	<u>Scolopendra</u> sp.
25.2 <u>Veri tinito</u>	<u>Trigoniulus ?lumbricinus</u> , <u>Orthomorpha ?coarctata</u>

Worms

26. <u>Toke/toketoke</u> , Earthworms and body worms	spp. of Oligochaeta, some Polychaeta, some Nematoda, ?and Cestoda
26.1 <u>Toke matau</u>	sp. of family Ancylostomidae

CHAPTER 8

ANIMALS AS FOOD.

Having completed a review of Manganian animal categories, it is now possible to give broader consideration to that most highly-valued function of animals, their use as food.

Manganians have traditionally taken one or two principal meals per day. According to Gill (1890a:336), in the last century the main meal was taken at sunset. The more prosperous would have a warm meal at about ten in the morning, but most would eat cold food prepared on the previous night. Buck (1934:137), describing the customs of the pre-contact period, states that food was cooked for a late-morning meal and the remainder eaten cold in the evening, before sunset. This pattern of meal-taking he connects with the need to be in a secure position before dark in times of inter-tribal conflict. Possibly, the establishment of permanent peace in the mission period allowed an increased importance for the evening meal which now, as in Gill's time, is the main meal of the day. The rest of the present pattern is less clear. Eating times tend to depend upon activities. Public service jobs set up a time framework which accords with a breakfast/lunch/tea or dinner meal pattern. This pattern is perfectly familiar to Manganians, though seldom strictly followed.

The content of ordinary meals is not greatly varied between evening and morning. Batches of prepared food may be consumed over several consecutive meals. A full Manganian meal should include at least one root vegetable, preferably swamp taro (mamio), an animal-food, either fish, other sea-food, or meat, and paka the spinach-like taro top greens. In

fact, meals without paka are quite common, but it would be a serious omission from a formal meal. Meat, fish, or sea-cucumber may be mixed with the taro tops to act as a complete complement to the starchy roots, taro, yam, and sweet-potato. The overall pattern is now complicated by the variety of introduced foods, from cabin bread and peanut butter to corned beef, cornflakes, and doughnuts. However, the staple taro and its complementary fish and flesh foods are still central to Mangaian eating habits.

In a formal meal for guests (not a major feast) it is usual to produce substantial selection of foods. One meal at which I was a guest included pork, chicken, a cooked high-prestige fish (manga, snake mackerel, Ch.4-9.), smaller raw fish, taro greens, a mixture of shop-bought vegetables and vermicelli, with swamp taro and dry-land taro tarua. On other occasions, sweet-potato and yam joined the root vegetables and different prestigious fish, such as tuna (a'ai, Ch.4-1.) or parrotfish (u'u and pakati, Ch.4-44. and 45.), were served. Arrowroot starch puddings (poke), or pineapple and pawpaw may add some sweetness to the meal.

The term 'umukai' (literally 'food oven') is applied to a variety of food occasions. At times, it may mean no more than a meal prepared by a family for a few guests, whether or not for some specific event. Some umukai involve contributions of food from the women of many families. Baskets of food might be contributed for church gatherings or for events such as the welcomes given to tere parties, organised groups of visitors. With assorted contributions, the food for such umukai is often varied. Major feasts, such as those connected with the hair-cutting ceremonies for adolescent boys or with important weddings and funerals, are more clearly centred upon particular foods. Large, formal feasts connected with specific occasions may be referred to as 'takarua'. Such feasts involve a distribution of food beyond the requirements of a single meal for the

guests. In the pre-contact period, fish was the principal animal foodstuff at all feasts. Days of fishing would precede a major takarua. Now, it is the introduced domesticates which are of central importance in feasting. Pork, chicken, and taro are the basics of present-day distributions.

Both formal and informal meals require tai 'akari, coconut sauce. This is a mixture of sea water and the juices extracted from grated coconut. Nowadays, chilli pepper and onion may be added. A pool of sauce is poured onto the plate (formerly into a coconut shell), and meat or fish, with or without taro greens, and the root vegetables, are dipped into it. There is often an audible sucking as the moist mouthful is taken. The dislike of dryness, the lack of natural moisture or oils, is particularly marked with regard to flesh or fish, and plays a part in their evaluation. The words 'inu'inu', 'oily or fatty' and 'matutu', 'fatty/rich', are generally approving terms when applied to animals used as food. For these to be 'rakiki', 'lacking in fat/lean', is less satisfactory. 'Rakiki te maroro i teia niarama', 'The flying fish are lean this month', implies that maroro fishing would not be worthwhile. 'Dryness' in fish or meat must be compensated for. I have seen fresh water poured over corned beef to moisten it when no coconut sauce was available. The use of sauce, then, points to one aspect of food preferences.

The Edible, the Inedible, and the Preferred - The Choice of Animals for Food.

Mammals

Mangaian intuitions concerning the suitability for food of the introduced, domesticated mammals follow closely those of the European introducers and were, presumably, largely learned from them. Pigs, goats, and cattle are prime food. Dogs, cats, and horses are non-food animals. (Though this is not, of course, to say that some culinary experimentation has not taken place.)

By far the most important of the eaten domesticates is the pig. Some are slaughtered for ordinary domestic consumption. However, though pork is occasionally salted, most meat cannot be kept successfully for more than a few days. The killing of a large pig more or less necessitates a distribution of the meat beyond the household of ownership, and finer pigs are, par excellence, the animals of feasting. Forty pigs were slaughtered for the hair-cutting ceremony of an adolescent boy in Feb. 1977, and about the same number were killed for a marriage feast. Recent feasts of up to sixty-seven pigs were talked of. (Inquiries in Oneroa village indicated that half the households own less than twelve pigs.)

Little is known of the consumption of the indigenous flying-fox in earlier times. Gill (1880:73) mentions that the moa kirikiri (Pteropus sp., Ch.6-22) were usually not eaten by the fugitives of defeated tribes living on the makatea plateau, being regarded by them as the embodiments of local protective spirits. Apparently, this restriction also applied to certain crabs and birds found on the makatea. Presumably, in other circumstances, flying-foxes were taken for food, as they are now.

The native rat, kiore (Rattus exulans, Ch.6-23.) was, without doubt, formerly highly valued as food. 'Sweet as a rat' was an expression of excellence (Gill, 1876b:316). According to Buck (1944:247), rats were eaten only by the older people. Children, it was said, would have their opportunity when adult. Under the missionary order attitudes changed markedly. Biblical prohibitions (Leviticus 11.29) and missionary loathing worked their influence. The missionaries John Williams and W.W. Gill both record being asked directly if it was sinful to eat rats (Williams, 1837:245; Gill, 1876b:316). Rats are now regarded as highly unsuitable for eating, and some Mंगाians are very sensitive about references to their ancestors rat-eating propensities. One informant denied forcefully that rats had ever been generally eaten. Of course, the rise of the introduced Rattus rattus has transformed the rodent population itself in the last hundred years.

Contact with cetaceans has always been limited and there is no evidence of their having been taken as food. Some years before my fieldwork, the flesh of a stranded dolphin or porpoise was sampled but was, apparently, not received with much relish. The dark colouring of the meat was regarded with suspicion. The association of at least one cetacean with Avatea, father of the gods in the old Mंगाian religion (see Ch.10), may have determined a particular ritual approach to these creatures. Gill (1876a:129) describes the ritual dismemberment and distribution of certain 'large stranded fish' (again, see Ch.10).

Mंगाia does, of course, have one other mammal - man. Incidents of cannibalism are readily found in the island's traditional history. According to Gill:

It is worthy of note that only warriors partook of these horrid feasts in the Hervey Group, very rarely and by stealth, women and

children (as in times of famine), or the remains of a broken clan hiding in the forest or in caves.
(1890a:325. The 'Hervey Group' is the older name for the Southern Cook Is.)

But Gill also maintains that habitual, institutionalised cannibalism had been suppressed on Mangaia about a century before the coming of the missionaries. This he attributes to an act of political policy on the part of the Temporal Lord Mautara (Gill, 1890a:324). Clearly, cannibalism, as an act of war against opposing tribes and an assertion of dominance, had a political dimension which went beyond mere nutrition.

Birds

As explained in Ch.6, present-day Mangaiaans regard all birds as potentially edible. However, only six species are consistently thought of as food resources - duck (Ch.6-1.), brown noddy (Ch.6-2.), the shearwater or petrel titi (Ch.6-5.), tropic birds (Ch.6-3. and 4.), and the chicken (Ch.6-6.). The last of these has become, in the past hundred years, overwhelmingly the most important, and the others are now only irregularly taken for food.

Chickens feature more frequently than pigs in lesser food occasions, but also play a part in feasting, especially when distributions are made to Seventh Day Adventists who obey the Biblical prohibitions on pig meat. Though pork has greater prestige and is more crucial to major food events, a survey question, "What are the best manu to eat?", revealed a clear preference for chickens. (Pig mentioned first - 14 times, chicken mentioned first - 48 times; pig mentioned at all - 26 times, chicken mentioned at all - 56 times.) Though this may, to some extent, reflect availability, a number of informants commented that chicken had a

tendency to be less 'dry'. The other eaten birds are also valued for their richness of flesh.

I heard no accounts of the kingfisher (tanga'eo, Ch.6-12.), the crake (mo'omo'o, Ch.6-8.), or the warbler (kerearako, Ch.6-13.) being eaten. These happen to be birds formerly associated with tribal gods (see Ch.9 and Ch.10). We know from Gill (1885:99) that another bird in this position, the kau'a (Ch.6-14.) was forbidden as food to the people of the Ngati Tane tribe, whose god, Tane, could be manifest in kau'a form. It is reasonable to assume that there were once similar formal restrictions on the eating of kingfisher, crake, and warbler. But, this does not seem to be a conscious consideration of modern Māngaians. They simply point out that these three birds are the smallest on the island, and claim, quite reasonably, that they are not worth the effort of capture and preparation.

Returning to older conceptions, it is interesting to note that, in a lament supposedly composed circa 1796, the crake, mo'omo'o, is listed with 'red worms' (toketoke kura), 'black beetles', or cockroaches ('ue'ue), and land crabs (karai'i) as one of the unappetising foods suitable for the spirits of the dead. According to Gill:

These pretty birds were regarded as suitable food for the dead, i.e. for dwellers in the "po"=darkness, on account of their blackness. Hence the appropriateness of crabs and black beetles as a diet for ghosts; besides crabs, beetles, and worms bore into the soil, or crawl about in caves where the dead lie.
(1876a:205n)

Reptiles

All lizards (moko, Ch.7-1.) have consistently been regarded as non-food animals. The thought of eating lizards is inherently unpleasant, and this as much as small size appears to discourage any experimentation.

Turtles ('onu, Ch.4-94.) are now too rarely seen to be a significant food resource. Few Mangaian have tried their flesh. Traditionally, they were rare and highly valued food animals. Fishermen were required to take any turtle captured to the ceremonial centre of Marae o Rongo, offering it for the eating of the Shore High Priest of Rongo (Gill,1880:1).

Fish

With few exceptions, fish are regarded as highly edible. However, there is a very definite order of preferences. The members of the tuna group (particularly a'ai, Ch.4-1.) and of the snake mackerel group (particularly manga, Ch.4-9.) head the list of desired fishes. The tunas are particularly favoured for their firm flesh and lack of troublesome bones, the snake mackerels for their oily richness. It was commented that a good manga does not really need coconut sauce, by virtue of its own 'moistness'. An associate of the snake mackerels, the vena (almost certainly the castor oil fish, Ruvettus pretiosus) represents rather too much of a good thing. It is often treated by repeated cooking to reduce the oil content. Gleeful tales were told of the public embarrassment of those who had overindulged in the flesh of vena in defiance of its laxative properties.

Eighty-five informants gave specific answers to the question "What is/are the best fish to eat ?", "E a'a te mangaika meitaki rava atu i te kai". The number of mentions given to particular fish can be broken down as follows:

<u>a'ai</u> , tunas	59
<u>manga</u> , snake mackerel	23
<u>nanue/tiotio/pipi</u> , rudderfish	10
<u>maemae/tutae nui</u> , rabbitfish	4
<u>vena</u> , castor oil fish	3
<u>kuku</u> , soldierfish	2
<u>koama</u> , bait goatfish	2

koperu, mackerel scad; ature, silver scad; maroro, flying fish; miromiro, half-beak; au'opu, bonito; tiovi, convict tang; patuki, handfish; pu'i, conger eel; tuna, fresh-water eel; 'eke, octopus:

and panako, blennies all received a single mention. Crude as this measure is, the most popular fish are clearly indicated. It is, however, slightly surprising that parrotfish, mullet, and the larger members of the snapper family Lutjanidae do not appear in this listing, since, in practice, they seem to be well esteemed. On the other hand, blennies, which were mentioned once, would be regarded by most Mंगाians as an eccentric choice.

Though the smaller lagoon fish may not have the same prized status as their larger counterparts of ocean and reef, they are by no means disregarded as food, especially when they can be taken in large quantities, as in poisoning sessions. Very popular with all are the ika tauira, fry, particularly those of the rabbitfish and surgeonfish (Siganidae and Acanthuridae), which lack developed bones and can be netted in large numbers.

At the other end of the scale of acceptability, there are a variety of reasons for fish to be deemed non-edible. Firstly, there is the question of toxicity. Mंगाia is largely unaffected by ciguatera poisoning, and fish known to have a good chance of being highly toxic elsewhere in the Pacific, such as some of the large snappers, are considered to be

completely safe. The last remembered case of fish poisoning, some year and a half before my fieldwork, involved the highly prized manga tangitu'oro (Ch.4-9.2). This was regarded as an isolated incident, though some informants had adopted the European custom of cooking similar fish with a spoon inside them, in the belief that discolouration of the metal reveals toxicity. Mangaiaans do recognise the dangers of eating pufferfish (Tetrodontidae). Tetrodontoid toxins have been responsible for deaths in the Southern Cooks. Some informants maintained that puffers ('ue'ue taka tai, Ch.4-87.) could be safely eaten after careful gutting and skinning, as in the celebrated Japanese fugu preparation. Most preferred not to use the fish for food. The pufferfish and porcupinefish (Diodontidae) are closely related, and, elsewhere in the Pacific, the latter have been implicated in tetrodontoid toxin poisonings. However, in Mangaia the porcupine- fish (Ch.4-86.) are considered completely safe and their oily livers much relished.

The word 'kona' is used to refer both to drunkenness and to poisoning due to fish. Asked the causes of poisoning incidents, Oneroaan informants said, simply, that the toxic fish had. 'eaten something bad'. There was no consensus as to what this 'something' was. Waste from trading ships was sometimes blamed. In the last century, Gill was told that fish became dangerous to eat after they had eaten the sea-centipede, a marine worm of the family Nereidae (Gill, 1876b:274).

Sharks have doubtful status as food. Some families do eat shark, but the smell and flavour of shark flesh are not widely liked. In addition, the thought of eating this fish evokes a negative emotional response in some Mangaiaans. I was told on several occasions that there is something unpleasant or disturbing about eating a creature that would attack and eat man. A specific misfortune is associated with the consumption of hammerhead sharks (mango iravaru, Ch.4-12.1). There are said to have

been incidents in which the eating of this fish has been followed by the appearance of violent skin eruptions. This sickness (maki) is a recognised danger of mango iravaru. The term 'ira varu' has little meaning for present-day Mंगाians beyond the obvious interpretation 'eight marks', the significance of which could not be explained. One informant proposed that the term reflected the similarity of this shark's flesh to that of the tuna varu (Ch.4-2.). However, in other parts of the Southern Cooks 'iravaru' has other, more disturbing associations. In Rarotonga the word refers to a group of diseases, and appears in the Rarotongan dictionary as 'some kind of monster, known to the ancient people and mentioned in tradition' (Savage,1962). In Atiu island it is the name of a guardian spirit. All this suggests that hammerhead sharks may have had supernatural associations, now lost. Certainly sharks were involved in traditional Mंगाian spirit beliefs (see Ch.10).

One traditional food taboo was clearly recorded by Gill (1876b:279). This prohibited women from eating either fresh water or sea eels. The prohibition had mythical origins, which are discussed in Ch.10. Although there is no general restriction on the eating of eels in Mंगाia today, and most women will eat them, I did find several cases of strong aversion. One informant fled when I attempted to get her to identify a dead fresh-water eel. Expressions of disgust for eels were heard from a number of women, but not from men. The only man who said that he would not eat sea eels explained that he felt this way because his mother had been averse to eating them when he was a child. A strong dislike of eels is now treated as a personal idiosyncrasy. But, the much greater likelihood of finding such attitudes among women (at least as far as my limited sample goes) does suggest that individual psychologies may be responding to a cultural tradition.

There are certain reservations about the eating of venomous fish such as the stingfish and scorpionfish (no'u, Ch.4- 91.). No'u are described as dangerous and ugly, 'bad fish' (mangaika kino). Informants were aware that the flesh itself was not poisonous, but the overall response to them still weighed against their use as food. However, this attitude is not universal, and large specimens are eaten from time to time, after due preparation.

Appearances are also against the lizard fish (karaea, Ch.4-92.). Mangaiaans acknowledge their reptile-like form (in Rarotonga they are known as 'mokomoko' evidently related to 'moko' = lizard). A few have doubts about eating a creature that so resembles the non-food lizards.

Of course, the obvious factors of taste and bodily structure may be involved in the rejection of a fish as food. The snake eels (pu'i kotuku, Ch.4-95.1) are sometimes said to have within them a bitter substance (mea mara) which makes them undesirable for eating. The little boxfishes (moamoa, Ch.4-88.), whose scant flesh is contained within a bony cage, were dismissed as completely useless fish (mangaika puapinga kore).

Echinoderms

Of the echinoderms present around Mangaia, only the sea-cucumbers and sea-urchins (Holothuroidea and Echinoidea) can offer significant amounts of edible flesh. As far as I am aware, all the locally common urchins are considered suitable for food. There are said to be no substantial differences in the quality of flesh from different species, though, curiously two women maintained that brown Echinometra mathaei (kina, Ch.5-3) were better eating than white urchins of the same species. Since these appear to be the same in size and content it is tempting to assume that this is a Mangaian equivalent of the 'brown egg syndrome' of British housewives. The months from Oct. to Dec. are

reputed to be especially good for the collection of urchins because they are fuller at this time; 'there is much flesh' (ma'ata te kiko).

Again, most of the common sea-cucumbers are eaten, at least in part. I collected only one species (Holothuria hilla) which was not used for food, and no explanation of its exclusion was offered. There are probably a number of other less familiar species in the lagoon which would be regarded as doubtful eating.

Different sea-cucumbers require slightly different preparations. In no case are the outer layers of the skin eaten, but the methods and the extent of removal vary. The Mंगाians are aware that the outer layers of some species contain a toxin which, as noted in Ch. 5, they occasionally use to stun small fish. Techniques of preparation are very much part of women's knowledge of sea-cucumbers. I was struck by the fact that, when asked to explain the differences between the different rori (Ch.5-1.), and between the rori and ngata (Ch.5-2.), the various sea-cucumbers several of my women informants chose to do so by reference to the different treatments they receive. Though Mंगाians talk in general terms of 'varu rori' , 'scraping sea-cucumber', in fact, many distinguish between:

- | | |
|--|--|
| <u>ka'i rori tapao</u> - | cutting <u>Holothuria leucospilota</u> . Only the internal organs are eaten. The creature is simply slashed with a knife and the innards drawn out. |
| <u>varu rori one tea</u> -
and <u>varu rori pua</u> | scraping <u>Holothuria atra</u> and a dendrochirotid. The outside is scraped off with a knife or shell, and the animal is gutted. |
| <u>'oro purupuru</u> - | abrading ?immature <u>H. atra</u> . These sea-cucumbers are too small to merit individual scraping. They are therefore placed in a basket full of sand and rubbed together. One end is bitten off and they are gutted. |
| <u>'ore kanaenae</u> - | peeling <u>H. pervicax</u> and ? <u>Stichopus</u> sp. A cut is |

made in one side and the outer layers peeled away. The guts are removed.

te'e ngata and te'e rori pu'atoro - skinning H. nobilis and ?Actinopygia sp. One of the features by which the ngata was contrasted with the true rori was the presence of a firm, tough outer layer, which must be pared away with a knife. However, this contrast is not absolute, since one true rori also requires this treatment prior to gutting.

The case of sea-cucumbers is a useful reminder that significant contrasts may be drawn at all stages of human interactions with animals, involving all the senses. In the preparation of the holothurians distinctions of tactile qualities become important in determining the appropriate course of action.

Although a valued addition to the diet, the echinoderms, and particularly the sea-cucumbers, do not have as high a food status as fish. They are the kinds of food that may provide an interesting dietary variation from time to time and will often be eaten as snacks. But, they would only be eaten consistently if other 'better' foods were not available.

Crustaceans

Sea, land, and fresh-water all provide edible crustaceans. Many species fall below what is considered to be a practical size for eating, but the only firm restrictions are upon those held to be poisonous. Present-day Manganians claimed that the most dangerous of crustaceans is the reef crab tiko'uru (Ch.5-38.), said to be so poisonous that it should not even be placed in the same basket as crabs which are to be eaten. Two species were identified as tiko'uru, Xanthias tetraodon and Etisus ?splendidus. I suspect that any large, dully coloured crab with hairy legs would be tentatively identified as tiko'uru to 'play safe'.

Gill (1876b:273) says that the crab recognised as the most

dangerous in the Mangaia of his period was the angatea, which he describes as a Portunus sp. He tells of angatea being used as a method of suicide. My informants recognised the angatea (Ch.5-43.) as potentially poisonous and identified Zozymus aeneus as the commonest of its two forms. Poisoning cases involving this crab are known from Australia. However, angatea is not considered as dangerous as tiko'uru the effects of the poison being milder, and toxicity being restricted to certain individuals. Some informants claimed that they would eat angatea, but would abandon it if any bitterness was detected. One suggestion was that the poison could be washed out by repeatedly soaking the crabs in fresh water, the presence of the toxin being indicated by a brown discolouration of the water.

Gill (1876b:273) credited the Mangaians with the belief that all land crabs were safe to eat, all sea crabs to be treated as doubtful. To a degree, this view is still held. However, only the sea crabs already mentioned are seen as a serious threat, and a few informants suggested that the land-living crab irave (Cardisoma longipes, Ch.5-52.) could, on rare occasions, become mildly poisonous. The only explanation offered for this intermittent condition was that the crab sometimes ate the poisonous of the Barringtonia tree.

The moist contents of the crustacean exo-skeleton is well-suited to Mangaian tastes. The greatest of delicacies is the soft, oily tail section of the coconut crab (unga puku'ara, Ch.5-53.3). The corresponding unarmoured tail sections of the larger hermit crabs are also much prized.

Mangaian talk of crabs provides an example of a sub category of animals based upon their food associations. The expression 'karai'i kai mata' (= crabs eaten raw) is in common use. It particularly refers to the papaka 'akau (Plagusia sp. or spp., Ch.5-40. and 41.) but is also used to

refer collectively to papaka 'akau, ku'ani'ani (Daira perlata, Ch.5-44.), and toetoe (Percnon planissimum, Ch.5-42.).

Other Arthropods

No insect or any of the other lesser arthropods is considered suitable for eating. They were sometimes said to have no flesh (kiko). A few Mंगाians will, surreptitiously swallow their own head lice. However, in general, the mere idea of eating the lesser arthropods is considered unpleasant.

Molluscs

Marine molluscs are a major potential source of food, with most larger species being eaten. Land molluscs are treated as non-edible. Though the similarity of marine and terrestrial forms is acknowledged, to the degree that some land slugs and sea-slugs are referred to by the same terms, attitudes to them are quite different. The idea of eating the larger land molluscs was repulsive to most informants. Terrestrial slugs were described as 'manu vi'ivi'i', 'revolting creatures'. But similar marine forms are sought out for food.

Large shellfish, such as the clams (pa'ua, Ch.5-22.) and the turban shellfish (ariri, Ch.5-11.), are those molluscs most sought-after for eating purposes. There are also smaller, strongly-flavoured delicacies such as the muricid rock snail mangoengeo (Ch.5-18.). The well-liked flesh of the octopus ('eke, Ch.5-36.) is compared with that of fish rather than with that of other molluscs. One very substantial shellfish is not eaten, the animal of the triton shell (pu, Ch.5-16.). No very consistent reason was given as to why such a large creature should not be used for food, but some felt the flesh was potentially dangerous. There have been poisoning cases involving this animal elsewhere in the Pacific.

Worms

Earthworms are said by many Mंगाians to be ugly or repulsive (vi'ivi'i) and are thought highly unsuitable for human food. As mentioned earlier, they feature among the food traditionally attributed to the dead. Marine worms, insofar as informants were aware of them, were also said to be unsuitable for eating.

General Observations

The structure of Mंगाian meals seems to confirm the tacit recognition of an animal domain. The flesh of birds, mammals, fish, shellfish, crustaceans, etc., creatures for which there is no single collective term in the language, is largely undifferentiated in its potential to enter into complementary relationships with vegetable foods in the composition of a meal. In this general respect, food animals are treated as all of the same sort, within limits, interchangeable.

Some tentative conclusions may be drawn from the consideration of the positions of food and non-food animals within the broader Mंगाian animal categories. Of the manu, birds and land animals, those seen as principally suitable for food are the largest and most central members of the category. They are those which were mentioned first by informants when listing manu and about whose membership of the category no doubts were ever expressed. The lesser manu or manumanu and manu rikiriki are all non-food animals. It is also amongst these smaller creatures that membership of the 'manu' category becomes more doubtful. The manu rikiriki torotoro'aere, small animals that crawl or creep, include several creatures, such as centipedes and land slugs, seen as supremely inappropriate as food.

With the mangaika the best food fish are also considered excellent examples of the category. In an informal experiment, 12 informants were asked to select from a list of 30 Mangaian fish terms those which could best be said to be 'true mangaika' (mangaika tikai). In every case, the prime food fish a'ai, tuna, was selected as the best example. On the other hand, eels, the former objects of food taboo, were more doubtfully included amongst the mangaika. Similarly, the behaviour and structural peculiarities of the infrequently-eaten sharks are considered to make them untypical of the mangaika.

It would clearly be extremely misleading to suggest that certain creatures are eaten because they are central to/good examples of the two major categories, or not eaten because they are marginal/poor examples. The importance of food animals to the Mangaian tends to focus attention upon them in any account of broader animal categories. With the category 'mangaika' there may originally have been an overt suggestion of 'food fish' (if the etymology deriving the term from 'manga'= 'food', 'ika'='fish' is accepted). If this is the case, the central position within the category of such fish as the tunas is readily understood, depending not only on morphology but on food status.

This is not to say that there is no Mangaian conception of a standard mangaika morphology. As far as this could be deduced from comments on various species and the terminology connected with the fish body, this conception is not dissimilar from my own view of an ordinary fish - at its crudest, a moderately elongated ovoid shape, with a cross-section deeper than it is broad, well-defined dorsal, pectoral, anal, and caudal fins, possibly scaly. Clearly, the tunas accord more closely with such an image than do eels. However, morphological oddity, on its own, is insufficient to affect food status. Flatfishes (patiki terevare, Ch.4-89.) are seen as

untypical of the mangaika in their remarkable bodily form, but remain perfectly good eating.

Within the 'manu/manumanu' category, the position of food animals is affected by the importance accorded to the relative size of organisms. 'True manu' belong to the upper end of the size scale. The eaten animals of land and air are relatively large, the smallest traditional food animal being the rat. They coincide in size range with the 'true manu'. Practical considerations of effort and return are obviously involved in the food selection. The assessment of return does, of course, depend upon a culturally mediated appreciation of the food-value of the various organisms. But, as far as I am aware, no society has ever concentrated its food-taking efforts on local small life at the expense of larger species. Whether such practical concerns influenced the formation and/or presentation of the category 'manu/manumanu' is open to speculation. However, the relationship between animal categories and food categories is certainly not simple and one directional.

As far as individual Mंगाians are concerned, the knowledge connected with animal foods and their preparation is an integral part of their knowledge of animals. We have seen how the distinctions drawn between sea-cucumbers are presented in, and made practically relevant by, the differences in their preparation. Animal categories may be sub-divided on the basis of food use, as with the example of the karai'i kai mata 'crabs eaten raw'. There is also one case of a broad food-animal category giving some unity to a fairly diverse group of marine organisms. These are the pu taitai, 'basic sea-foods'. The category 'pu taitai' is similar in extension to the 'things of women's fishing' (see Ch.5). It includes shellfish, sea-urchins, sea-cucumbers, and possibly crabs. Fish are definitely excluded. Those creatures most generally agreed to belong to the pu taitai are those which can be eaten raw as an instant snack, such

as clams, muricid 'rock snails' (Drupa spp.), and urchins. The interpenetration of food-oriented and other animal categories is seen, then, at many different levels of generality.

Modern Mंगाians are highly pragmatic about their food choices, explaining why a creature is not eaten with comments such as 'it's too small', 'no flesh', 'it doesn't taste good'. Attributions of toxic properties to certain species are highly credible in the main, conforming with accounts from other areas. There are emotional and aesthetic responses involved, as in the attitude to sharks, or the revulsion felt for some of the land invertebrates. But, the only group to follow any explicit food rules are the Seventh Day Adventists, who attempt to follow the rulings of Leviticus, avoiding pork and marine invertebrates such as octopus. The little that is known about pre-missionary food restrictions shows that, in part, these involved animals designated as privileged offerings to the supreme religious authorities. However, some food taboos, such as those forbidding to fugitives the eating of makatea birds and crabs, those affecting 'totemic' birds, and those concerning eels, involved the connections drawn between animals and supernatural forces and beings.

CHAPTER 9

SIGNS, OMENS, AND SPIRITS.

Animals may be the foci of human subsistence activities, as in fishing, hunting, or rearing. They may cause disruptions in activity as pests or dangers. But they may also inform activity, providing information about states of the world relevant to present and future action. For convenience, animal signs may be divided into two fairly distinct groups.

The first is a group of 'natural' signs which simply involve the correspondence of some animal behaviour with a natural event or condition. In effect, the animal acts as an index. In this group might be included:

Weather Indicators

Kokoroti cockroaches (largely Periplaneta spp., Ch.7-10.) flying in large numbers at night and entering houses are said to indicate immanent heavy rain, which, indeed, seems to follow frequently.

A rather less common belief is that the whistling cry (pui) of the long-tailed Cuckoo (patangaroa, Ch.6-15.) also presages rain.

Sea-condition Indicators

Night reef-fishermen, fishing without lights, listen for the cry of the Lesser Golden Plover (torea, Ch.6-10.). The bird emits its cry as it takes off, having been displaced from its feeding places on the outer part of the reef by the waves of the incoming tide. It therefore acts as a warning of the change in the tide's direction.

Canoe-fishermen claim that dolphins (tutu, Ch.4-16) will swim towards the side of the island where the sea is roughest.

Indicators of Other Sought Animals

As explained in Ch. 4, the presence of an octopus may be indicated by the sighting of the tentacle-eating pakevakeva fish (Ch.4-80.). Similarly, sea bird flocks (rau manu) indicate the presence of fish shoals.

Some of these examples may be termed 'aka'iro' usually translated as 'sign' or 'omen'. I have, for instance, heard cockroaches spoken of as an 'aka'iro of rain. However, this term is more certainly applied to the second group of animal signs, those involving supernatural activity.

Such signs are not so much indices of natural events as communications about future human conditions. In these cases, animals are the agent or material form of an external power manifesting itself to human beings for some purpose. We might loosely speak of 'spirit signs', but the degree to which the motivating power is explicitly identified as a spirit is variable. There are, nonetheless, two major groupings of spirit beings, both of which have been held to have connections with the animal world.

Most important now are the tupapaku, interpreted as human spirits (vaerua tangata). That is to say, they are that part of the person which is released at the extinction of the life-principle, ghosts. Wandering human spirits feature clearly in Manganian traditions of the pre-Christian period. It was believed that after death the departure of spirits for upper or lower otherworlds was not immediate.

Many months might elapse ere the projected departure of the ghost took place. This weary interval was spent in dances and revisiting their former homes, where the living dwell affectionately remembered by the dead. At night fall they would wander amongst

the trees and plantations nearest to these dwellings, sometimes venturing to peep inside. As a rule these ghosts were well disposed towards their own living relatives; but often became vindictive if a pet child was ill-treated by a step-mother or other relatives etc. (Gill, 1876a:156)

The spirits remained in the vicinity of the body for a while and then wandered off disconsolately to the seashore, where they waited among the rocks and tangled vines until the time came for them to leave for the spirit world. They also haunted the places where the placenta to which they had been attached was buried. (Buck, 1934:197)

Eventually, the ghosts would depart from one of the island's spirit leaping places on the seaward side of the makatea.

Clearly, tupapaku were not, and are not, primarily creatures of human habitations, though they are drawn back to them at night by their memories of life and their affection for the living. It should be remembered that the traditional burial places were well away from living sites, in the caves and chasms of the makatea. Even today burials tend to be outside, or on the outskirts of, villages. This pattern is unlike Rarotonga, where tombs frequently stand within house compounds. Mangaia's churchyards are an exception, but are used only for a limited number of more important burials. Besides places of interment, including caves, there are other sites, such as abandoned marae (sacred sites of the old religion), or 'places where blood has been shed' (e.g. old battlegrounds), which are strongly associated with tupapaku.

Ghosts are reputed to manifest themselves in many different ways. They may simply appear in human form, or as shadowy human outlines. There may be ghostly lights seen at night, either the static glow of the pura (apparently a luminescence connected with a fungus found on trees), or rows of moving lights, the aitu (= spirit), reportedly seen on the central

hills. There are even stories of tupapaku lights in the sea. Ghostly presences may also be indicated by sounds. The tini (= troop/band) and the tangi ka'ara (= sound of the ka'ara drum) are said to be the sounds of ghostly progresses, with voices and drumming being heard in uninhabited places at night. Bodily sensations can reflect tupapaku activity.

Temperature changes and the standing up of the hair ('uru vanavana) suggest that the spirits are close at hand. More vigorous and troublesome ghosts may cause the sensation referred to as 'parai'ia', a feeling of being pressed down upon making it impossible to move and difficult to breathe (from 'parai' = 'to squat or brood over'). Illnesses can result from contact with ghosts. Wry necks seem to be particularly associated with their displeasure. Even smells may be related to tupapaku. The odour of the flowers of the pua tree (?Fagraea berteriana) about the house indicates their nearness. Though modern Mंगाians are not generally aware of it, the pua tree was traditionally associated with the spirits path to the underworld (Gill, 1890a:346).

Animal tupapaku should be viewed in relation to the broad complex of ideas concerning ghostly action. That the appearance of human spirits in animal form is part of a long-standing Mंगाian tradition is confirmed in the writings of Gill:

.....the spirits of the dead are fabled to have assumed, temporarily, and for a specific purpose, the form of an insect, bird, fish, or cloud. But gods, specially the spirits of deified men, were believed permanently to reside in, or to be incarnate in, sharks, swordfish, etc., eels, the octopus, the yellow and black-spotted lizards, several kinds of birds and insects.

(Gill, 1890a:347. The passage apparently relates to the whole of the Southern Cooks.)

The latter part of the passage just quoted leads us on to the second group of animal/spirit relationships, the animal forms of the atua gods, spirits other than those of the dead. Major atua were, in the pre-mission era, the objects of tribal and pan-tribal cults, their marae under priestly supervision. Lesser atua were associated with many parts of the natural environment, and were accorded respect in a variety of activities - fugitives avoided eating the animal representatives of the atua of the makatea rocks, fishermen made offerings to the fishing atua etc.

Myth suggests that the first communications from gods to men were by way of the animal world.

The gods first spake to men through the small land birds; but their utterances were too indistinct to guide the actions of mankind. To meet this emergency the order of priests was set apart, the gods actually taking up abode, for the time being, in their sacred persons.....Although unsuited for the delivery of oracles, birds were ever regarded as the special messengers of the gods to warn individuals of impending danger; each tribe having its own feathered guardians.

(Gill, 1876a:35)

This echoes Firth's (1930-1) assertions that the animal/spirit linkage of Polynesian 'totemism' is part of a general pattern of spirit relations which includes the indwelling of spirits in humans, possession. It also implies that the principal continuing function of the animal (or, at least, bird) forms of the gods was that of omen, a limited message of warning being suited to their limited potential for communication. However, more complex omen-taking was possible, as in the case of the lizard (gecko) which formerly lived in a cave at the Aumoana marae and which, being an incarnation of the atua Matarau or Turanga, was..

...consulted and its actions and movements interpreted if omens were required. Interpretations were familiar to the worshippers of the god, especially the priests.
(Buck, 1934:172)

'Totemic' associations will be explored further in the following chapter, in relation to the mythological background. It is sufficient for now to note that such associations frequently involved not merely the respect for animal species but some expectation of communication through those species. Animals were the medium for the spirit message.

The atua have fallen in the course of a century and a half of Christianity. Those stories collected which directly linked atua and animals were all second hand and relating to earlier periods ("Old people used to say...", "My grandfather told me...", etc.), though not necessarily to the pre-Christian era. One tale recalls that the minor Rarotongan atua, Ta'akura, appeared on Mangaia in the form of a chicken at the time that a Belgian connected with the chiefly Makea family of Rarotonga was living on the island. This story relates to the latter part of the last century. But, though sceptically greeted by many, tales of Ta'akura appearing in human form in the none too distant past are still to be heard on Rarotonga. She now seems to be regarded as a tupapaku. The position of the tupapaku was not directly challenged by Christianity, and it is probable that the category became expanded to include some lesser non-human spirits, effectively blocking any deeper enquiry into their nature and questions of compatibility with the new religion.

While suggesting that a belief in tupapaku continued more acceptable than a belief in the old atua, I do not imply that present day belief in tupapaku is by any means universal in Mangaia. My enquiries there were often a cause of considerable amusement to those claiming to reject all belief in spirits and omens. A strong vein of scepticism exists.

Yet it is scepticism about a generally familiar body of traditions, and these still find some firm believers. Spirits and certain animals remain interconnected in Manganian minds, whether bracketed as part of 'tradition' or seen as of continuing practical significance.

Let us, then, review those animals with the strongest mystical associations.

Birds

Rakoa and Upoa - Shearwater and petrel spp., including Wedge-tailed Shearwater (Ch.6-18. and 19.).

These rarely seen nocturnal seabirds are considered similar and are sometimes confused. Both are thought to be manu tupapaku (= ghost birds), and may act as omens of death for prominent members of the community - members of the ariki family, kavanas (major district chiefs), or orometuas (pastors). Both birds have loud, disturbing calls - a baby like wailing from the upoa, a throaty, rolling 'raakoa...' sound from the other. The unnerving night-time cries of the shearwaters and petrels have often been noted by natural historians.

The omen of death is given by a bird flying over a village for a considerable time, up to a quarter of an hour, calling repeatedly. Some say that the bird continually flies from one end of the village to the other. This is similar to the Rarotongan tradition that the rakoa flies the boundary of the land of the man who is to die. Others suggest that flight of the upoa or rakoa would centre on the village church.

It was noted that the rakoa is occasionally to be heard in the area of the inner makatea cliffs in the latter months of the year. In

those circumstances there is no definite omen intended. The unusual behaviour of the birds in coming to the village is central to their omen role.

Moa and Mokora - Domesticated chickens and ducks (Ch.6-1. and 6.).

All the introduced domesticates show a potential for spirit associations, though these are secondary to other roles and not as clearly marked as with the upoā and rakoā. Ghost tales tell of tupapaku chickens and ducks, often said to be white, seen in the interior. In such cases the spirit appears as an animal rather than in, or through, an animal. The creature does not have an independent existence. The duck described in these stories seem to be of the type formerly kept around the compounds, rather than the wild species.

Ordinary compound roosters may function as sign-givers without any strong tupapaku associations. Usually the sign is provided by a cockerel entering the house, or standing in the doorway, and crowing. This is, fairly light-heartedly, interpreted as indicating the approach of a visitor. One informant assured me that he had a cockerel that signalled the coming of family members. The bird has recently come into the house, suggesting that a relative was to arrive on the next boat - he did. Here, again, it is a certain behaviour that marks the role as 'aka'iro.

Four birds which no longer have spirit associations were formerly linked with major atua - the warbler (kerearako, Ch.6-13), the uncertainly identified kau'a (Ch.6-14), the crane (mo'omo'o, Ch.6-8.), and the kingfisher (tangaeo, Ch.6-12.). As mentioned above, these birds were said to approach members of the cults of particular tribal atua crying out

a warning as danger approached. (See, for instance, the story of Itieve and the kau'a's warning; Buck, 1934:172.) These are, indeed, the 'small land birds' said to have spoken first for the gods. All are noted for quite loud and distinctive calls. Those birds identified will appear suddenly and noisily in the proximity of human beings. The warblers are inveterate chatterers. The kingfisher more than once surprised me by breaking into piercing cries above my head. Even the retiring crake, the numbers of which have probably been reduced by cats and dogs, is reputed to let loose volleys of cries from the shrubbery of the taro swamps, and to make sudden emergences. The prevalence of this type of behaviour among the spirit-birds recalls Bulmer's comments on the importance of the nature of man animal interactions in symbolic selection (Bulmer, 1979 and n.d.) referred to in Ch.1.

Lizards

Moko karara - Geckos (Ch.7-11).

Geckos are no longer strongly linked with the spirit world, though a few believe that they may act as omens. To give a sign the lizard appears above the head, or otherwise close-by, inside the house and emits noises. The Mourning Gecko (Lepidodactylus lugubris) is the common house lizard, and can make a very audible chittering. The nature of the sign is not precisely defined, but open to interpretation. It is, however, supposed to relate to events within the ambit of the household members.

Though the association of a gecko with Matarau/Turanga, the atua of the Tongaiti tribe, is now recalled only as part of distant cultural history, the tradition of the guardian lizard has persisted well into this century. Many Mंगाians in their forties and fifties remember being told as children of gigantic moko karara which

protected at least two of the burial and repository caves within the makatea Gill (1894:97) also mentions a lizard cave guardian. It is said that food offerings were formerly made to those lizards.

Fish

Pu'i - Grey conger eel (Ch.4-95.).

It is recalled that certain peculiarities in the behaviour of this eel were once regarded as an omen of death for the observer.

Descriptions of the omen behaviour varied slightly. Some informants said that the eel would poke its head from its coral hole retreat and 'stick out its tongue', an action referred to as 'tara'ura'u pui'. Others simply said that the half-emerged eel would repeatedly nod its head in the direction of the intended person.

In the pre-Christian period, some sharks and fresh-water eels were linked with atua. Further details of these relationships will be found in the following chapter. But, it is worth noting here that there was thought to be at least one eel guardian, that of the Raupa burial chasm, comparable to the lizard guardians just discussed (Gill, 1880:119).

The Small Arthropods

Vava - Bush cricket (Ch.7-7.).

The term 'vava' is so closely linked with spirit activity that some informants denied that the vava had any bodily form. It was a tupapaku recognised by the noise (tangi) that it produced. This sound was described as 'tikerere tao tao' and was identified with the metallic chirpings of the bush crickets. Typically, it is heard overhead, in house roofs, or in bushes or trees. It is considered similar to, but distinct, from the sound of the ground crickets. Many

recognise that the vava also physically resembles the ground crickets, but still acknowledge its links with ghosts.

Gill's records show that the vava was traditionally considered to embody, or speak for, the spirits of men killed in battle.

A species of cricket rarely seen, but whose voice is heard at night plaintively chirping "kere-kerere-tao-tao", was believed to be the voice of these warrior spirits sorrowfully calling to their friends. Hence the proverb, "The spirit-cricket is chirping" (Kua tangi te vava).
(Gill, 1876a:162)

An unpublished Manganian text collected by Gill provides another possibility.

Te tikerere nei, E tangi na te vava e ano te etene e, e tangi na te Atua o ratou, e reira ratou e akatopa i ao!
o Tane koe e karanga nei.
(Gill, n.d.)

This chirping, the sound of the vava, the heathen say it is the sound/call of their god (atua) and would recite 'You are speaking Tane'.

The cricket could also be the voice of a more important non-human spirit.

For present day spirit believers, the ghostly vava comes to the house to convey some message relating to the affairs of the household. This can be anything from the arrival of a visitor to disapproval of family quarrels, being very open to post hoc interpretations. The omen is neither necessarily bad nor good. In some cases the vava may be regarded as a protective family spirit.

It is claimed that specific spirits may be recognised in the different tones of cricket chirping.

Uru'apuka - Large green grasshoppers Ch.7-6.)

Unlike the vava the appearance of the uru'apuka in the house, and particularly on the person, is an unequivocally bad sign. These creatures are frequently referred to as 'manu tari maki' or 'manu 'apai maki', 'manu that bear or carry sickness'. They are a medium by which illness may be brought to members of the household and should be killed. Despite modern scepticism, I have seen uru'apuka killed within the house. For many, the source of sickness carried was not clearly defined, but it was suggested that it could be regarded as a tupapaku sickness.

Iriano - Sphinx moths (Ch.7-4.).

These large and noisy moths are another minor domestic omen, their appearance inside dwellings often being connected with the coming of visitors, or, perhaps, the arrival of money. Only one informant saw them as a bad sign. They are not harmed.

Tukutuku ra'o nui - Crab spiders (particularly Heteropa venatoria, Ch.7-23.).

The very large spiders often seen within the house may be found carrying white egg sacs beneath their bodies. This is said by some to be a sign of good fortune or future gain, the sac sometimes being described as a 'money bag'. Clearly, this is either a European-introduced superstition or a recent elaboration of an older tradition.

The contention that, whereas eight-legged spiders may be lucky, seven legged spiders are unlucky and should be killed does

seem to suggest an older belief. Eight is evidently a traditionally significant number - waves were said to come in sequences of eight; the god Matarau was 'the eight-tailed lizard'; the number eight features in several myths; eight petalled tiare maori (Gardenia taitensis) may be used in love magic when the ordinary seven-petalled flower may not. There is here something curiously similar to the 'completeness' of the number eight reported by de Coppet (1970) among the 'Are'are. An emphasis on the number eight may well be widely distributed in Oceania (see Beckwith, 1940:209-10). So, the beliefs concerning spiders may grow out of mystical beliefs concerning number rather than those concerning spirits.

The connection of the centipede (veri tara, Ch.7-25.1) with spirit activity has become attenuated in Mangaia; in fact, Rarotongan informants made the link more clearly. However, the centipede was formerly held to be the material form of the god Teipe and also featured as a cave guardian (Gill, 1894:96). The veri tara is particularly active at night, and Gill (1876b:308-9) specifically relates its spirit status to a phosphorescent phenomenon, a glow coming both from the trail and the crushed body of the animal. I have not witnessed this effect, though Gill apparently did. The association of other kinds of luminescence or phosphorescence with spirits has already been noted.

Domesticated animals

The introductions of the past century and a half, pig, cow, horse, goat, dog and cat, have fallen readily into the framework of Mangaian spirit-animal beliefs. One of the best known of the island's tupapaku is the white sow of Araoa, a spirit connected with a certain area of the north

coast, reputedly appearing in the form of a white pig followed by many piglets. A number of tales revolve around this creature.

Similarly, there are stories of ghostly horses seen galloping along the reef, behaving as no real horse could. Such is the quality of current cynicism among some Mangaiaans that my host suggested to me that these tales had originally been invented by a successful night-fisherman who, having found a good fishing ground along one stretch of reef, hoped to make sure others did not go near it - a modern twist to the spirit guardian! One family claimed to have a spirit horse as a family omen of death. It had been heard near the house at night eating foliage. In the morning the plants around the house were seen to be untouched and it was realised to be a tupapaku. A death in the family followed shortly.

Ghost stories of cows are rarer on Mangaia, possibly reflecting the rarity of the real creatures. Rarotonga provided a wider selection of cow-spirit tales - for instance, a cow guardian was associated with the chiefly compound of Taputapuatea. Goats, dogs, and cats all figured to a lesser extent.

To complete this round-up of animal signs and mystical associations, it should be noted that in the pre-Christian period animals or animal materials were manipulated in three techniques of taking war omens:

- a) Two ariri shells (Turbo petholatus according to Gill, 1890a:340; but possibly other Turbo spp.) were placed on the tribal marae the day before a battle. Each shell was allocated to one of the contending sides, and they were examined in the morning to see which had turned over - the sign of coming defeat (Buck, 1934:159).

- b) In the method pa te vai water was placed in a container of taro leaf and banana stem and live dragonflies lizards, and centipedes were thrown into it. The number drowning indicated the number of warriors to be killed. Gill (1894:268-9) speaks of 'green lizards' being used in this divination, probably skinks rather than the spirit-linked geckos.
- c) The will of the gods could be expressed through a fish hunt. Three or four large fish of a certain species would be seen enjoying themselves in the shallow waters of the reef.

It was known beforehand that these fish, if chased, will not return to the ocean, else the chase were in vain. They invariably make for the shore, or for some hiding-place in the reef.....the fish are literally hunted to death....The number of fish caught was believed to prefigure the number of the doomed.

(Gill, 1894:268-9)

The behaviour described suggests the wrasses re'u and arera (Anampses spp., Ch.4-51. and 52.).

The actions of the spirit being are, in these cases, indirect. They are not represented in the animals. The message comes through what is done to the creatures rather than what they themselves do. The vision of the defeated warrior as a successfully hunted fish introduces a recurrent fish/victim theme which is discussed at the end of Ch.10.

A number of general comments may be made on the basis of these materials. Firstly, there is the question of how a spirit or omen animal is

identified. Confronting this issue in respect of Tikopia 'totemism', Firth wrote:

The broad test is based in a rational manner on the behaviour of the animal itself. If it behaves strangely, in a manner not characteristic of its species, then it is an atua in animal guise: if it acts in a normal fashion then it is an ordinary individual and may be treated as such. (Firth, 190-31:305)

Clearly, the Manganians recognise similar conventions - the rakoa is an ordinary bird until it comes to the village; a cockerel reveals itself as an omen animal by entering the house, as do others of the creatures described; tupapaku horses are supposed to wander on the reef, an action most unlikely for a normal horse.

The information derived from an event is directly related to its unpredictability. An acceptable omen must to some extent parallel in its frequency of occurrence the situation it is taken to predict (or interpretation must be sufficiently wide to accommodate its variable occurrence). The behavioural definition of animal omens does serve to regulate their particular frequencies. A major omen, such as that of the upoa and rakoa involves not only rarely seen creatures but strong behavioural qualifications, increasing the rarity of the event. The 'ghost-bird' omen has not been given in Oneroa village in recent years.

However, clear patterns emerge in the behaviour attributed to 'spirit omen' animals, suggesting that whatever regulatory functions its definition might serve are secondary to other considerations. An important feature is the approach to human beings, whether in coming to the village, as with the upoa and rakoa, by entry into the house, typical of the smaller omen creatures, or in a direct manner, as with the omen birds of the atua. Whether such behaviour could be said to be 'not

characteristic' of some of the species concerned is a fine point. Suffice it to say that it ranges from the truly rare to the intermittent (in accordance with the status of the omen). What are very distinctly involved are movements from the natural to the human world.

It should be recalled that the traditional Mangaian view of wandering human spirits places them outside the habitations of the living, travelling in wild places, only approaching houses at night, peering into them, occasionally entering to intervene in family affairs. Death effects a removal from the normal human orbit, to which spirits intermittently return. Animals which perform such 'outside' to 'inside' movements reflect the supposed patterns of spirit activity. It could also be suggested that the more important spirit powers were, essentially, of the 'outside'. Mangaian religion was not one of domestic cults. The marae, separate ceremonial structures, were the foci of ritual. As with other Polynesian cases, the rules of tapu were primarily concerned with the separation of that which was relatively pure and powerful from that which was 'common' (noa). With respect to persons, tapu fell most strongly on those possessing the ascribed mana of ritual/religious authority (i.e. more strongly than on those whose active powers were expressed in military achievement - Mangaia's military leader, the Temporal Lord, was required to approach the Shore High priest on hands and knees). 'Commonness' lay especially in the everyday events of daily life, particularly in the sphere of women's activities. Ultra-human powers were those most removed from the ordinary domestic environment. Bearing this in mind, the idea of spirit approaches from the natural world is readily comprehensible.

The principle object of spirit approaches is communication, be it the divine warnings of Mangaia's old religion, or expressions of ghostly concern in family matters. Generally the manifestation in a given place, in

itself, constitutes the message (that is, it triggers interpretation). Spirits draw themselves to the attention of their intended audience. 'Spirit omen' animals are creatures which commend themselves to the attention in a number of ways.

The ability to produce sound is crucial to many spirit-animal contacts. As observed, all omen birds were, and are, noted for their vocalisations. In descriptions of the seldom sighted upoa and rakoa their cries were consistently stressed, though often no clear visual description could be offered. They are 'birds calling out in the night' (manu tangitangi'aere i te po). Reed warbler (kerearako), kingfisher (tanga'eo) and kau'a are all spoken of as 'noisy' birds. The cockerel's vocal abilities doubtless aided its induction to the ranks of bird omens.

It must, however, be said that there are Manganian birds with well-known calls which do not seem to have any omen role or other active spirit connections. The cries of tropic birds and white terns (Ch.6-3., 4., and 7.) are regularly heard. But these are usually given during high flight and heard far overhead. The birds do not combine their call with a clear approach. The same might be said of the wild duck (Ch.6-1.). However, it cannot always be said for the shorebirds, plover and tattler (Ch.6-10. and 11.). As explained earlier in this chapter, the cries of the plover, near at hand, are used as a tide warning. In other Southern Cook Islands these two birds have had spirit associations. An Aitutakian story of an omen plover (torea) is now known by many Manganians who accept the bird's appropriateness in this context.

Somewhat surprising at first glance is the case of the shearwater or petrel titi (Ch.6-5.) which, though recognised as resembling the upoa and rakoa, and also calling at night, is not thought of as a 'ghost bird'. Rather, it is spoken of as a good meal. Possibly, greater familiarity with

the titi may influence the response to it. Yet, it is worth observing that Mangaian attitudes to the cries of the titi are quite different to those expressed towards the calls of the 'ghost birds'. The sharp 'ti-ti' of the former is just another bird call. 'Ghost bird' cries, especially those of the upoa are unnerving and disturbing in themselves. Such an emotional attitude may, of course, depend upon foreknowledge of 'ghost bird' status, but there are strong parallels in the accounts of European residents on Rarotonga who, without such foreknowledge, had heard the birds for the first time. They also spoke of weird and eerie noises with some human-like qualities. That the emotional response evoked by the calls was instrumental in establishing a spirit connection cannot be ruled out. The qualities of a call, as much as its relationship to other aspects of behaviour, may be of importance in the selection of a 'ghost bird'.

Of other omen creatures, the role of sound is most clearly marked in the case of the cricket vava. The vava is almost purely sound; its physical appearance is unknown or unimportant. I have heard it described, 'E tangi, e tupapaku', 'It is a noise, a ghost'. It is sometimes said that if the sound is traced nothing will be found at its source. Indeed, the crickets can be very elusive. Sharp and insistent, and usually overhead, the vava's chirping stands out well from other night sounds. The noise of a single cricket, out of sight in a crevice, can fill a room. Mysterious vava sounds have even been heard by canoe-fishermen at sea. Less mysterious, but nonetheless important in establishing omen-giving behaviour, is the chattering of the house gecko, moko karara. Though the sign given by the sphinx moths, iriano, is not directly connected with their sound, their whirring flight is, undoubtedly, one of the features that marks them out from other moths and makes their entry into the room immediately apparent. The capacity for sound production is, then, by no means restricted to the omen birds.

Besides their audible attributes, are the major omen and spirit animals visually remarkable? Here, there are no ready generalisations to be made. Considering first, size, this does not appear to be a factor in the selection of omen birds. The three species identified as the birds of the atua are the smallest on the island; the upoa and rakoa are of medium size. The really large birds, such as the frigate birds (kota'a, Ch.6-20.) or the toroa (Ch.6-21.), probably a giant petrel, have no evident spirit connections. As they are true birds of the sea, not nesting on Mangaia, close contact with them is rare. But even the relatively large reef heron (kotuku, Ch.6-9.), with greater scope for interactions with man, is not singled out as a spirit bird.

Setting apart size, kau'a and tanga'eo have been admired for their shining plumage. But, overall, the colours and markings of omen birds are not particularly striking.

With the arthropods the position is rather different. Though the vava may be a visual nonentity, the same cannot be said of the grasshoppers (uru'apuka) or the sphinx moths (iriano). Both are among the largest insects on the island, falling into that size range where 'manu' and 'manumanu' categories fuzzily merge. Large dragonflies are of similar size but are not generally treated as sign-givers on Mangaia. Yet, on Rarotonga and other Southern Group islands they do have a minor omen function, being lightheartedly interpreted as a sign that visitors are coming.

The bright green colouring and powerful, unpredictable leaps of the grasshoppers help to focus attention on them in their domestic incursions. The sphinx moth Gnathothlibus erotus eras, the principal iriano, is large enough to audibly bump into walls and ceilings, not to mention persons, and displays striking orange markings below the wings. Similarly, the centipede veri tara, at around ten centimetres in length, is the most

impressive of the veri group, and is contrasted with the smaller and commoner millipedes (veri tinito). If it can produce a nocturnal glow, as Gill reports, this would, of course, be another outstanding visual feature. The lucky spiders, with leg-spreads from 6 to 8cm., are apparently the largest and most central members of the spider category 'tukutuku ra'o nui'. So, though they are the smallest of spirit and omen creatures, these arthropods are large in relation to those groups of animals in which they are placed and do show some striking visual features.

The major spirit animals are, in general, of limited utilitarian importance. Only the eels (tuna and pu'i) are regularly eaten, and the shark occasionally so. Otherwise, only the crake (mo'omo'o) has a marginal economic significance as a provider of black feathers for fishing lures. However, there remains the question of whether the spirit creatures might represent threats to human well-being, either as predators or as competitors for resources (as suggested by Firth in the case of Tikopian 'totemic' animals, see Ch.1). Centipede and shark undoubtedly represent dangers to man. The centipede has a painful, poisonous bite, capable of causing severe inflammation. Sharks may, of course, be deadly, and also compete with fishermen for reef fish. It could also be argued that some eels are aggressive. But, notably, it is not the really dangerous moray eels (kerekere) that feature in spirit beliefs. Nonetheless, myth does relate the spirit status of fresh-water eels to an attack upon man. The great eel Ka'u bites the ancestor Rangi. Ka'u is one of the 'anau tuarangi', 'heavenly or spirit children' of Tumuterue (see Ch.10).

The myth text states:

...i karangaia....e 'anau tuarangi, no te mea e kakati I te tangata.
It was said....they were spirit children, because they bit man.
 (Gill, n.d.)

Subsequent discussion of myth will also show a supposed link between eels and sexual aggression.

The 'totemic' birds associated with the atua of particular social groups clearly do not represent any direct danger to man. Neither are they serious competitors for resources. Certainly not more so than other island birds. None were described as pests. The major bird pest is now the mynah, and informants claimed that no native bird had ever been as damaging to fruits. The kingfisher (tanga'eo) may have been mildly beneficial in removing the pests of the coconut.

It is equally unclear that any of the other lesser spirit and omen creatures threaten areas of human material well-being. Possibly, a case could be made out for the caterpillars of some sphinx moths as pests of the sweet-potato. But I was not told of any serious infestations.

Finally, there is the question of nocturnal activity. About half the animals mentioned here are nocturnal in their habits or, at least, are not infrequently active at night. This is especially appropriate to creatures associated with tupapaku, which are thought to be particularly active at night. But the Manganian animal world has a rich nocturnal life involving members of most animal groups. Night-time activity is not, in itself, treated as anomalous.

The following table offers a rough summary of the discussion so far.

	Activity seen as approach	Sound producing	Nocturnal activity	Large member of group	Eaten	Danger to man
<u>Rakoa</u> (?Petrel)	■	■	■			
<u>Upoa</u> Shearwater	■	■	■			
<u>Mo'omo'o</u> Crake	■	■				
<u>Kau'a</u>	■	■				
<u>Ke rearako</u> Warbler	■	■				
<u>Tanga' eo</u> Kingfisher	■	■				
<u>Moko karara</u> Geckos	■	■	■	■ ¹		
<u>Vava</u> Cricket	■	■	■			
<u>Iriano</u> Sphinx moth	■	■	■	■		
<u>Uru' apuka</u> Grasshopper	■		■	■		
<u>Veri tara</u> Centipede	■		■	■		
<u>Mango</u> Shark			Some	■	Some	■
<u>Pu'i</u> Conger eel			Some		■	?
<u>Tuna</u> Fresh-water eel	? ₂		■	?	■	?

Table 1: Attributes of Major Spirit and Omen Animals

Note 1: Only if the less often seen Gehyra sp. is included.

2: Legend tells of very large eels appearing out of water, interpreted as a spirit communication.

The pattern of spirit and omen beliefs surrounding the introduced domesticated animals is rather different. Some cases do demonstrate the kind of omen-giving behaviour that has been described - the cockerel entering the dwelling ,the spirit-horse approaching the house at night. Yet many stories place wandering spirits in the form of domesticated animals away from human habitations. In these instances it is usually a spirit in animal form that is involved, rather than a spirit entering an ordinary animal. Two alternatives suggest themselves:

1) Wandering spirit detached from the social world	→	Approaches man to communicate
Wild animal	→	Approaches man or human habitation
2) Human spirit	→	Leaves human habitation after death
Domesticated animal strongly associated with man	→	Seen unexpectedly at night away from normal living areas

There are, of course, many wandering animals on Mangaia, principally pigs, which are completely disregarded in the majority of encounters. Curious appearance, unusual behaviour, and presence in unusual places at unusual times have all contributed to the identification of spirit-animals. Some spirits are linked to specific locations; some to particular arapo, nights of the lunar month (see Appendix 3). I have heard the term 'moko'iro' used to refer to such animal spirits, fixed in their place

(and sometimes time) of appearance. The white sow of Araoa was offered as an example, as was the lizard of Piri te umeume. The latter is a cave guardian. It is possible that, in the last century, spirits in domesticated animal form were enrolled in the ranks of guardians for sites the significance of which has now been forgotten.

Why pigs, horses, cows, etc. should have been so readily incorporated into the complex of spirit beliefs can only be a matter for speculation. Their strong links with human owners may have made them a particularly appropriate form for ghosts. In the mid-nineteenth century, all a man's animals were killed at his death (Gill, 1876b:77). Also, on their introduction to Mangaia, the domesticated mammals must have been immediately striking as by far the largest creatures ever seen on land. The largest land mammal then resident was the rat, the largest land animal, the coconut crab. Missionary accounts state that the first pigs to be landed were immediately proclaimed as the manifestation of an atua wrapped round with white bark-cloth and taken to the Marae o Rongo. Only some time later did the priests come to the conclusion that the pigs were 'mere rats' (Gill, 1876b:91).

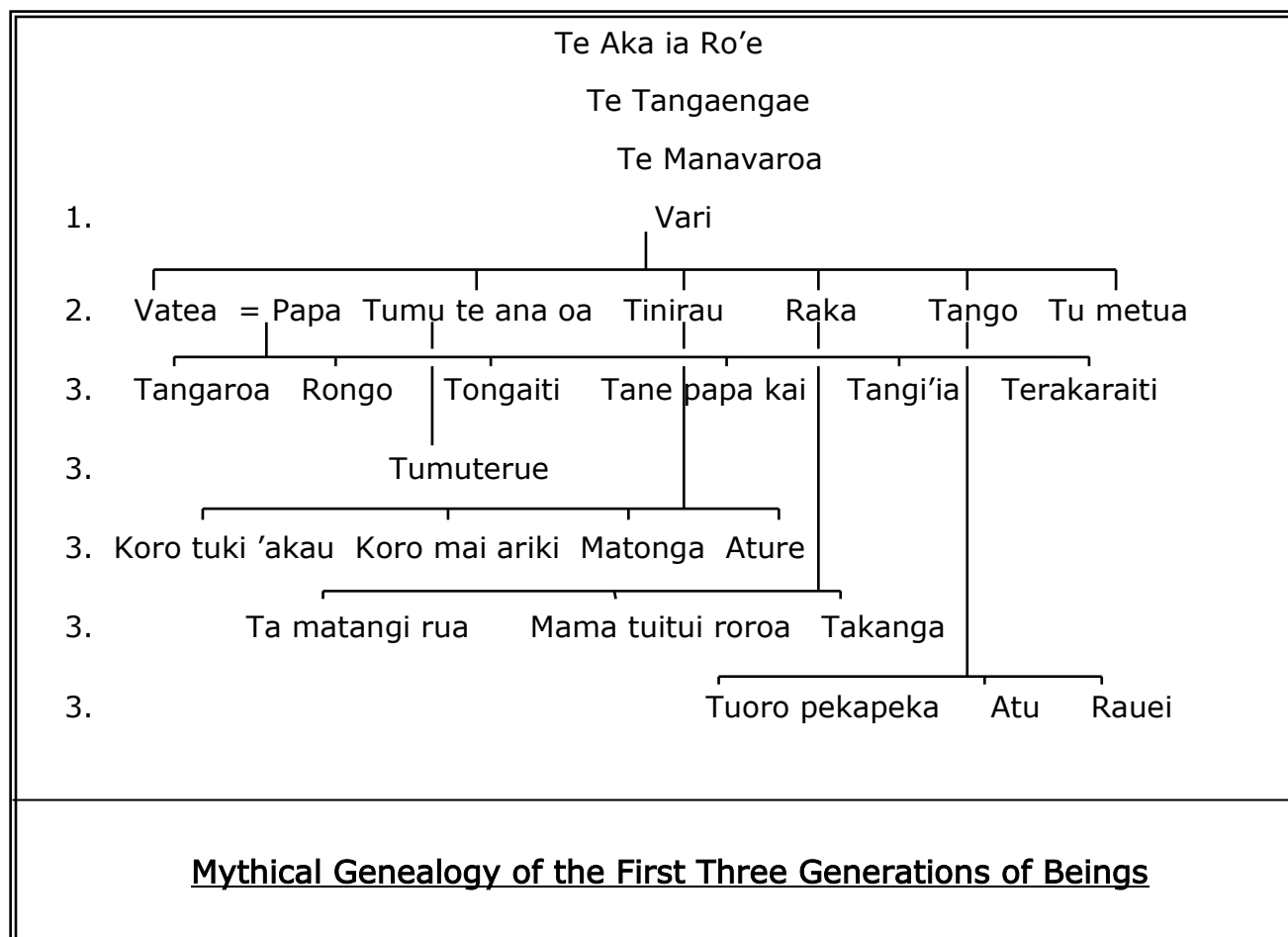
New and remarkable creatures lent themselves to identification with active supernatural forces. The link between animals and spirit beings was drawn more broadly than this chapter on its own might suggest. The spirit/omen animals which have been its main topic of discussion might, in terms of the worldview connected with Mangaia's former religion, be seen as selected from many possibilities as being highly suited to the performance of particular spirit actions. The wider interrelationship of the animal world and many supernatural beings is made clearer in examining myth and legend.

CHAPTER 10

ANIMALS IN MYTH AND 'TOTEMISM'.

The major origin myths of Mangaia were recorded by Gill (1876a:2-20), some supplementary information being given by Buck (1934:22-30). The genealogy of gods and men is traced from Vari ma te takere, one of four primordial beings.

Figure 4: (Based on Buck,1934; and Gill, n.d.)



The ancestress Vari is associated with the mud of the taro swamps (vari ma te takere = mud and the bottom/foundation) and vegetative growth. Her six children are born by budding off from their parent, three on each side. The cosmos, as a whole, is presented in the image of a coconut. The first three primordial spirits are assigned to portions of the stem or root whereas Vari and her children are located in regions within the coconut shell. These mythical regions are related to actual ecological zones of Mangaia Island and its surrounding sea (see Mark, 1976). The three instances of animal association in the generation of the children of Van are closely linked with their supposed location.

From Vari's eldest male child, Vatea or Avatea, are descended the major gods and, in the line through Rongo, the human founding ancestors of the Ngariki people. It was said of Avatea:

E rua o Avatea tino, e tino
tangata, e tino ika
(Buck, 1934:14)

Avatea has two bodies, a human body and a 'fish' body.

The 'fish' concerned is not a true fish but the cetacean ta'airangi (Ch.4-17.). Gill's account (1876a:3) has Vatea very clearly divided between his two natures:

Now, Vatea, the father of gods and men, was half man and half fish, the division being like the two halves of the human body. The species of fish to which this great divinity was allied being the taairangi (Cetacea), or great sea monsters, i.e. porpoises, whose sides are covered with pure fat and whose home is the boundless ocean. Thus one eye of Vatea was human, the other a fish eye. His right side was furnished with an arm; the left with a fin. He had one proper foot and half a fish tail.

Buck, on the other hand, suggests that human shape might be seen as Avatea's spiritual form and the ta'airangi as his material incarnation (Buck, 1934:14). Nonetheless, Gill, in another work (1890a:348), again draws the distinction between the sides of Vatea, saying that his eyes are the sun and the moon, the latter being the pale 'fish' eye.

I cannot offer a precise identification of the ta'airangi. Gill always refers to it as a 'porpoise' and my informants consistently maintained that it belonged with the to'ora, a'angu, and tutu (Ch.4-14., 15. and 16.), the various cetaceans. Some of Mark's informants suggested that they could be as large as the to'ora (Mark, 1976:236), but the few people who could offer any description to me proposed a size between that of the dolphins (tutu) and the smaller whales (a'angu). The creature now known as 'ta'airangi' may well be a large porpoise. Gill (1876a:98) states that the earthly ta'airangi came into being when Avatea formed one from a portion of his own flesh. This 'was not counted with other fish as it was covered with pure fat or blubber'. He further makes clear a distinction between ta'airangi and the large whales, commenting that if the latter had been eaten in earlier times the Mंगाians would have known that the ta'airangi was not the only 'fish' with a distinctive fat layer.

Whether or not the ta'airangi can be identified with a particular real species, the information given about it is enough to suggest some reasons for its special mythological role. Vatea was said to live in Te-papa-ra'ira'i, 'the thin land' or 'the narrow layer'. This was the uppermost, outermost layer of 'Avaiki, the underworld out of which the 'real world' of Mंगाia emerged, and of which it was a reflection. His association with the sun has led to the name of Avatea being translated as 'Noon' or 'Light of day'; but, Vatea also means 'Clear space' or 'Remoteness'. An emphasis on outerness and extended, distant space carries through into Vatea's 'real

world' associations. He was lord of the great ocean, the 'sea of Vatea', stretching outwards from Mangaia into the unknowable distance (Gill, 1876a:18). The high prestige/low prestige, ocean/inshore, male/female contrasts with respect to fishing have been commented on in Ch. 5. The position of Avatea may be seen in terms of an extension of the scale of such contrasts. As senior male child of Vari and father of the gods he is oceanic in the extreme. (Similar conclusions are found in Mark, 1976:187-90.) The 'boundless ocean' is the haunt of the ta'airangi. All the cetaceans are occasional visitors to Mangaian waters from the expanse of ocean beyond. Porpoises or dolphins might on rare occasions be hooked in tuna fishing or in trolling, but they lie outside planned fishing activity. In addition to its appropriate location and behaviour, the ta'airangi presents the physical anomaly of its fat layer. In the absence of large land animals, the most similar fatty tissue known would be that of man. Man and fish are combined in Vatea. The choice of ta'airangi for its mythological role is clearly not arbitrary. It is peculiarly suited to the expression of Vatea's cosmic role and status. Par excellence a creature of the oceanic realm of masculine supremacy, unlike other 'fish', it can embody the unique masculine powers of Vatea.

It is appropriate to move next to Tinirau, the third-born child (according to Buck, second-born child according to Gill) of Vari. Tinirau also has a human and a fish form, and is associated with the life of the sea. Gill claims that Tinirau's fish form is that of a 'sprat'. Unfortunately, he uses this word on different occasions to mean nearly any kind of small fish, whether the fry of oceanic species or small shore fish such as blennies. What he intends in the case of Tinirau's fish is not clear.

Tinirau's mythical home is Motu Tapu (= Sacred Island), with its many fish ponds. He is 'lord of the finny inhabitants of the sea from the shark downwards' (Gill, 1876a:5). Initially, all the fish of Tinirau were

confined to the shore pools of Motu tapu, which became overcrowded. Tinirau then asked his elder brother, Avatea, for permission to release some fish into the ocean, which at that time supported only the ta'airangi. Permission was granted in exchange for a portion of Motu tapu, and the smaller fish became part of the life of the open sea (Gill, 1876a:98—9). In present-day tellings of Tinirau myths all the true fish are the 'anau ika a Tinirau', 'fish children/descendants of Tinirau'. The use of the descent relationship term 'anau' suggests that Tinirau is not merely the ruler of fish but their ancestor. This would be in accord with the common Polynesian practice of locating the members of the animal world within cosmic genealogy.

Third among the children of Vari to be linked with particular animals is Tumu te ana oa, the eldest daughter. She is manifest in echoes (tumu te ana oa =?origin of the shouting cave). Her home is Te Parai tea, rendered by Gill as 'the hollow grey rocks'. In terms of the island's surface, Tumu te ana oa is connected with the caves and gullies of the makatea, particularly the inner edges of the plateau, where echoes are most apparent. The small lake Tiriara, just within the makatea cliffs, is known to be the main area of her haunts (Gill, 1880:13). Rats (kiore, Ch.6-23.), fresh-water eels (tuna, Ch.4-97.), fresh-water shrimp (koura vai, Ch.5-56.), and fresh-water gudgeon (kokopu, Ch.4-98.) are all said to be descended from Tumu te ana oa. The unity of this group of animals is clearly not one of perceived resemblance, but of location. Setting aside the birds and minor arthropods, these creatures were the principal animal inhabitants of the interior portion of Mangaia in the pre-contact period. The descendants of Tumu te ana oa are said to have populated the island before man set foot on it (Gill, 1876a:117).

We find then, with these three children of Vari, the following associations:

Vatea, firstborn son.	Distant sea and space, the great ocean,	Ta'airangi cetacean, oceanic, potentially anomalous.
Tinirau, second son.	The known sea.	True fish.
Tumuteanaoa, first daughter.	Inner edges of the plateau, caves,	Animals of the interior.

Given the priority of senior male lines, we can see that the pattern of associations does conform with the high status/low status, male/female, ocean/shore contrasts already referred to. Mark (1976) has argued that Vari and five of her children can be assigned to actual ecological zones, their sex and rank being related to the sex and rank of those actually exploiting the resources of those zones. Clearly, location within particular zones is of prime importance in determining a division of animal species between the first three children of Vari. Indeed, general location takes precedence over perceptions of physical resemblance and over more detailed considerations of habitat. Land animals (rats) and fresh-water creatures become grouped together. Though Mंगाians acknowledge the resemblance of fresh-water and marine fishes, the former are grouped with the other animals of the interior rather than their sea-living relatives. Something of this strong division between sea and land (including inland waters) may persist in the unwillingness of some of my informants to include fresh-water fishes in the marine fish category 'mangaika'.

There are many more animals whose origins and spirit associations are not accounted for in considering the children of Vari. For these other groups of creatures, lizards, birds, crabs, insects, etc., one must look toward later generations of the cosmic genealogy, and precise relationships become more difficult to establish.

Lizards make an appearance in the generation of Vari's grandchildren. Tongaiti, son of Avatea, has the visible form of 'white and black spotted lizards' (Gill, 1876a:10). Tongaiti is apparently identical with Turanga or Matarau, the lizard god of the Tongaiti tribe. Matarau adopted the form of a gecko (moko karara, Ch.7-1.). The choice of geckos as spirit/omen animals has been commented on in the preceding chapter, but the connection with Tongaiti is clearly part of a much wider tradition. It is not, perhaps, surprising that Tongaiti was also known on nearby Rarotonga where he again assumed the form of a lizard (Gill, 1890c). But, lizards are strongly associated with supernatural beings in many parts of Polynesia. A probable link between Mangaian and New Zealand Maori beliefs can be found in the description of Matarau as having eight tails (Gill, 1876a:291). This links him to Mokohikuwaru (moko hiku waru = eight tailed lizard), for some New Zealand Maoris the creative father of lizards (Best, 1923). The problem of the origins of Polynesian lizard symbolism clearly goes beyond the historical and geographical scope of this thesis.

There is yet another name in Mangaian myth connected with lizards, that of Moko. He is described as 'Great Lizard, king of all the lizards' and beneficent grandfather of the hero Ngaru (Gill, 1876a:225). Moko, or Mokoroa as he is also known, cannot be placed in the cosmic genealogy, though he is among the descendants of Vari. He may well be in the line of Tongaiti. The lizards who act as his servants in assisting the exploits of Ngaru are, once more, geckos. A note by Gill gives further insight into their supernatural roles. He comments:

The black and yellow lizards hide during the day in the caves supposed to be the high-road to the spirit-land; whereas the common green variety suns itself all day on the leaves and grass. (Gill, 1876a:229).

The 'black and yellow lizards' are the geckos of Moko, whose behaviour is contrasted with that of the sun-basking skinks. The caves are charged with spirit associations, both as sites for the placing of the dead and, more generally, as a route to the spiritual underworld of 'Avaiki. Some of this charge accrues to the geckos, who favour such enclosed spaces and are much less evident than the skinks during daylight hours.

No Mangaian account of the origin of birds has been recorded. But, as noted in the discussion of omens and signs, tribal gods could be incarnate in certain birds, and birds have been the principal messengers of the atua. (For the main fixed connections between birds and atua see Table 2.) The birds, taken as a whole, cannot be readily fitted into a schema based upon significant regions or zones. Some birds may be seen in virtually every area of land and sea. Similarly, there is no evidence to place them in any specific genealogical line from the children of Vari. This may simply be a reflection of the partial nature of the recorded and remembered mythology. On the other hand, it may be that the birds are distributed across the world of spirits as they are across the real environment, standing as a messenger corps for many different spirit beings.

Again, nothing can be said of the mythical origins of Mangaia's numerous crabs. They do not feature at all in any of the known myths, though in one historical legend (Gill, 1880:59) certain crabs found on the makatea are regarded by fugitives to embody, or be under the protection of, unnamed guardian rock spirits. The absence of crabs from the major origin myths might, possibly, be attributed to the fact that they bridge the distinction between land and sea and between male and female food gathering. They would, perhaps, blur the mutually-reinforcing ecological and social distinctions that these myths seem to assert.

name was not familiar to my informants. However, Gill remarks upon the theme of the eva:

All the minor gods (i.e. reptiles and insects) have resolved to kill the illustrious Ruru. None of the major gods pitying him his ghost sorrowfully enters the shades.

So it seems that Tiereua may be one of a number of lesser, and potentially destructive, spirit beings. These are represented in the potentially destructive and predatory small life of the island. The low evaluation of insects by Mangaiaans, their principal practical interests being the disruptive or destructive capacities of these animals, is reflected in the low grade of the mythical beings concerned.

Some butterflies are represented as spirit messengers or helpers of the supreme god Rongo, as will be seen in the story of Matarau, to be examined later in this chapter. In this instance, the larger flying insects take on a role analogous to that of birds.

Like the crabs, molluscs and echinoderms are virtually absent from the known mythology and traditions relating to spirits. We know only that, as an artefact, a trumpet, a triton shell (pu, Ch.5-16.) was an important symbol of the god Rongo (Gill, 1880:201). Factors which might, in part, explain the paucity of references to animals of these groups include their association with low-prestige women's collecting activity and their restricted mobility and simplicity of form, limiting behaviour which might be interpreted as communicative.

From this brief survey of the available information on the mythical origins and major spirit associations of the various animal groups some

general conclusions may be drawn. With a few exceptions, there is evidence for links between the broad range of the animal world and the world of gods and lesser spirits. Animal world and spirit world echo and interpenetrate each other. A number of rather different relationships are represented. In the generation of the children of Vari (with Avatea, Tinirau and Tumu te ana oa) the mythical beings are the ancestors of, and have general responsibility for, particular groups of animals. Moko, 'king of the lizards', may enter into a similar relationship with the island's reptiles. None of these beings was the object of a religious cult, and the animals with which they were linked were not, it seems, regarded as their direct physical manifestation.

It is the godly descendants of Vatea and Papa, with some other gods of doubtful ancestry, reputedly introduced from other islands (e.g. Utakea and Tekura'aki), that were the objects of worship in tribal cults and more directly involved in human affairs. With them, the connection between animal and spirit is more immediate and direct. A particular creature might be a more or less permanent physical expression of a god. For instance, the lizard living in the small cave at Aumoana marae to which food offerings were made, was said to be the incarnation of Matarau/Turanga (Buck, 1934:165). In the case of omen birds a more temporary indwelling seems to have been involved. In the discussion of omens and signs, it was noted that the small land birds were claimed to have been the predecessors of the priesthood, attempting to convey the intentions of the atua. Birds and man, as priest, parallel each other in their relations to the gods.

One term for a priest receiving communications from the spirit realm is 'pia atua', literally 'god box' or 'container for the god'. Birds and some other creatures, such as centipedes, lizards, or sharks, could also be such

'receptacles' for spirits. The precise nature of god/animal relationships is now difficult to establish, but there are evident parallels with other better recorded Polynesian cases. In his discussion of the material symbols of Tikopian spirits Firth (1970:113-27) refers both to more or less permanent and more temporary embodiment, as well as to 'vaka atua', 'vessel or vehicle of the god', the indwelling relationship between atua and medium priest. In Mangaia, as in Tikopia, certain plants and inanimate objects also acted as material symbols of the gods. These included the oronga tree (Pipterus velutinus according to Buck, 1934), the major source of fibres for fishing line and nets, Mangaia's celebrated 'god adzes', with their elaborately carved hafts, and certain kinds of sennit work. Even less information is available on the specific form of the spirit relationship in these instances.

For a list of the principal atua their material symbols or adopted forms, and their tribal associations see Table 2.

Clearly, some creatures have been connected with the spirits of particular places or regions. The crabs and birds linked with the makatea rock spirits are an example of this. But, as explained, location is of special importance in considering the animal associations of the children of Vari, their creatures occupying the three concentric zones of island interior, known sea, and distant ocean. It has been suggested that the relationships between the beings attributed to these zones correspond to general relationships of rank and status within Manganian society. This assertion seems to hold equally well for the simple three-part firstborn male/junior male/female system suggested by the animal associations as for Mark's (1976) six-part system based on patterns of ecological zone exploitation. As just noted, the children of Vari did not have independent cults, and were not, therefore, individually associated with any particular tribe or tribes, that is, with any specific competitive political unit. It seems reasonable to suggest that the relationships represented through the system of concentric zones occupied by the animals of the children of Vari are traditional, generally recognised and essentially non-competitive relations of authority. They establish the kind of ascribed ranking which might be expected to form the basis for the 'traditional' Polynesian society of Goldman (1974).

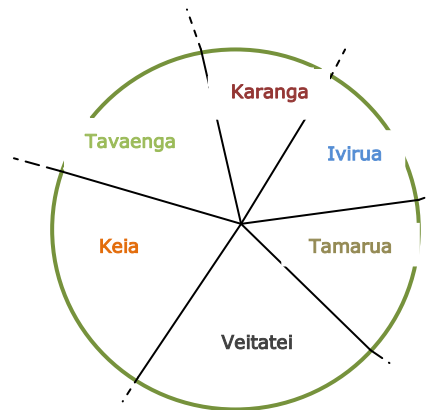
But Manganian history provides, for Goldman, a prime example of the transformation to an 'open' society with a strong element of status competition centring on success in inter-tribal warfare. The tribal divisions on Mangaia are reflected in the distribution of gods. Though, latterly in any case, there was a national cult of the god Rongo, each political division had its own favoured atua and places of ritual (marae). Animals could be the material form of a god and thus be associated with a particular social and political unit. There was, then, the three-cornered

relationship man (social group)/spirit/animal which Firth (1930-1, 1966) has noted as typical of Polynesian 'totemism'.

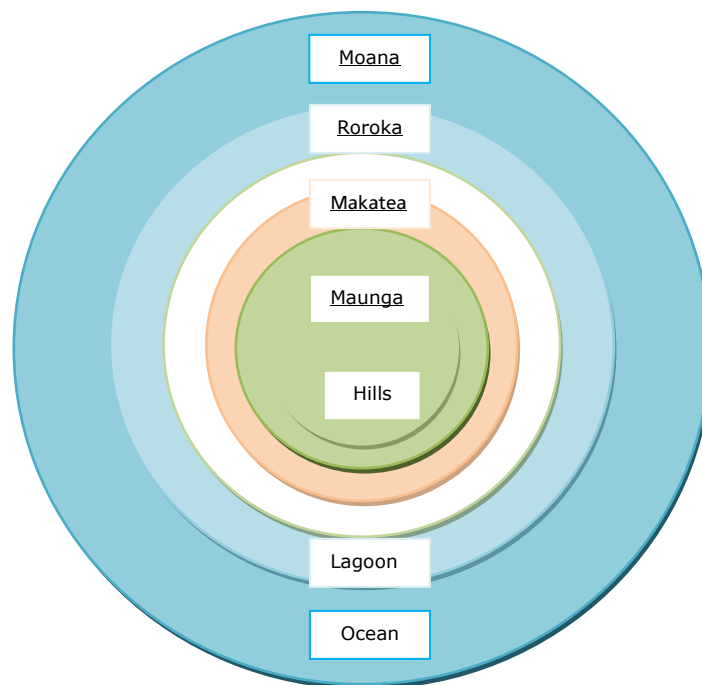
In looking at inter-tribal relations one moves from a conception of the island divided into concentric zones to a radial or segmental viewpoint (see Fig. 5). The major land divisions cut the island up like a cake. Though the identification of any particular tribe with a particular sector of the island has become blurred with successive wars, alliances, and redistributions, rights to areas of land, or, more crucially, rights to determine distribution of land, were at the core of inter-tribal contention and political ambitions. The animals associated with the tribal atua were only identified with specific parts of the island in as far as the tribe was linked with that area. So, Matarau, god of the Tongaiti, took his lizard form at Aumoana marae in the Tamarua district. Tamarua was the main area of Tongaiti settlement.

An examination of Table 2 will make it clear that we are not dealing with a clearly structured 'totemic system'. The association of animals, plants, or inanimate objects with tribes and their gods is partial and, apparently, haphazard. Not every tribal god had a material form. Others had several.

It is difficult to detect systematic relationships between the forms of one tribe's gods and those of others. If one accepts, with Buck and Goldman, the broad outlines of Manganian traditional history, then it is clear that successive groups of settlers brought with them their own gods, certain of whose links with animals or other material forms must have been established before they entered the Manganian pantheon. This is one aspect of historical contingency. Worsley (1967:154) has argued (contra Levi-Strauss) that collections of totemic items may be 'agglomerative, arbitrary, and fortuitous', 'though established upon quite discernable multiple lines of association (connections in Nature, connections in myth,



Radial or Segmental Viewpoint
(Showing present six major districts)



The Concentric Viewpoint
(Showing some recognised zones)

**Fig 5. Two Conceptions of the
Island of Mangaia**

connections effected in historical cultural experience etc.)'. At first sight, the collection of the material forms of the Mangaian tribal gods would seem to be of this kind. Indeed, in this instance, even direct mythical associations seem to be sparse. In their mythical interactions the atua are usually assumed to have human forms. But, their animal forms mediate in their relations with worshippers and have a largely communicative function. In considering their selection we will be returning to the omen role and Firth's arguments concerning the importance of animal mobility in their 'totemic' role (see following chapter).

Summarising, there are three sets of animal/spirit connections apparent in Mangaian myth and legend. Firstly, there are the sets of creatures descended from, and under the auspices of, the first three children of Vari. These belong to three concentric regions. The social categories appropriately associated with these zones, senior male/ junior male/female, reflect traditional principles for the ascription of authority with consideration to primogeniture and sex. The identification of the zones themselves reflects local perceptions of the physical geography and ecology of the island. The second group of animals may be related to the island's political divisions. They are the creatures which, in particular circumstances of behaviour or location, would be considered as an embodiment of a tribal god. Here, the relationship between animal and spirit is direct, one of indwelling or of identity by virtue of the taking on of animal form. The creatures concerned are a mode of communication with the worshippers of the tribe, each tribe having its own medium/omen animals. Finally, there is an ill-defined group of creatures connected with the spirits of particular localities. Amongst these might be included the guardians of burial caves or chasms. Again, in these cases spirits are actually embodied in animals.

Possibly, the guardians could be seen as minor tribal atua, particular burial places being used by particular tribes. But tribal divinities were, in any case, selections from the inhabitants of a generally recognised spirit realm, just as their animal forms were selected from the known animal world. The different sets of animal/spirit associations suggested here are not exclusive as to their animal membership. Creatures descended from, or under the rule of, Tinirau and Tumu te ana oa also appear as the material forms of tribal gods. It seems that there is not a definitive set of relationships between animals, a set categorisation, which makes them appropriate to a specific symbolic statement on the social order. Rather, the same material may undergo reinterpretation, or simply a revision of viewpoint, to fulfil revised symbolic ends. So, animals appear as unified groups occupying concentric zones and as individual fragments of those groups in connection with the gods of the various kin-based political divisions of Manganian society.

The aim of the second part of this chapter is to explore briefly the symbolic roles of animals in the wider corpus of Manganian mythology, examining some myths in which animals play a prominent part. The ta'airangi, the animal of Avatea, does not appear in the recorded mythology other than in the accounts of the children of Vari already given. We can begin, therefore, with stories surrounding the 'fish children of Tinirau'.

Fishing has its mythical origins in the first netting performed by the six grandsons of Tango, son of Vari (the sons of Atu, see Figure 4.) (Buck, 1934:12-13). In the version given by Gill (1876a:100) it is the father of the gods, Avatea, who provides the net and instigates the fishing. All the fish of Tinirau are captured in the great net. Avatea then gives each fish the name by which it is to become known and begins to count them. So

great is the number that he eventually abandons the task and the fish are returned to the ocean.

It is tempting to see this naming of fish upon their capture as a confirmation in myth of the intimate connection between the categorisation of fish and their position as the objects of fishing activity. However, considering that this myth was collected in the mid- to late nineteenth century, Biblical influence cannot be ruled out and this incident may be an echo of Genesis Ch.2. The counting of the fish is a more consistent element in the known variants of the myth, found in Gill, Buck, and in a modern telling by Iviiti Aerepo of Tamarua. What is described in the myth is a tuku netting (see Ch. 4, technique J.). Such group fishing would be followed by the 'akatuanga, or sharing out of the catch. The origins of counting may be seen as related to this sharing-out process. The myth claims that fishing and counting came into being on the same occasion. Counting would, almost invariably, be a feature of the fish-sharing, important in establishing the rights of the individual fishermen, the net owner, and, possibly, in setting aside appropriate offerings for chiefs. There is, then, a socially significant link between numeration and fishing.

Another theme to emerge is that of the inexhaustible supply of the sea. The counting task is beyond Avatea himself. Fish were, traditionally, Mangaia's principal consistent supply of animal food, a self-reproducing and apparently unlimited resource. The name of Tinirau, lord of fish, may be translated as 'Innumerable' or 'Many hosts', possibly another allusion to the vast numbers of fish.

It will be noticed that the myth of the origin of fishing involves male characters only, one version centring on the senior male figure, Avatea. This, once more, points up the now familiar link between male authority, the sea, and fishing. To see the mythical role of a woman in relation to

fish and the sea we may turn to the myth of the journey of 'Ina, wife of Tinirau.

The version given here is freely translated and slightly condensed from a modern telling by Tereevangeria Aratangi.

'Ina was the wife of Tinirau, chief of the ocean. 'Ina's father was Vaitouri, her mother Ngaitua. It happened that there was an argument between 'Ina and her husband. Tinirau went away, and 'Ina did not know where he had gone. Crying out she searched the land, but did not find him. She went and cried out on the seashore, close to the Avarua channel. She called out to the fish of ocean, reef, and lagoon to come and fetch her, and take her to see her husband, the chief Tinirau. This she did every dawn.

One dawn as she called out on the seashore, she saw a fish within a wave. The name of that fish was tiovi (Convict Tang). Our ancestors had three names for this fish. A really large tiovi was an avini, a bit smaller, a pepe, and a really little one, a pepepepe. Seeing the fish 'Ina called out, "Avini, avini travel upon the sea, travel shorewards. Come and carry me to see my husband, the chief Tinirau". The tiovi came and 'Ina tried to climb onto it. But it could not rise up and carry her. 'Ina became angry, and she marked the tiovi with charcoal, causing it to be striped with black. She returned to her home, weeping.

The next day, she went again to call out on the shore to the fish of ocean, reef, and lagoon, asking them to take her to her husband. She saw a fish in a wave. Its name was patikiterevare (a flatfish). She called out to it, "Travel through the sea patikiterevare travel shorewards. Come and take me to my husband, chief Tinirau". The fish came, and 'Ina stepped onto it.

But the fish could not raise her up to carry her. In her anger 'Ina stamped on the fish. Our ancestors said that this fish was flat because it had been stamped on by 'Ina.

The next dawn 'Ina returned, once more, to cry out on the shore. She saw a shark, mango and asked if it would take her to her husband. The shark consented, and 'Ina went home to prepare for the journey. Taking a bunch of coconuts to eat, she went back to the shore where the shark was waiting for her. She climbed onto its back with her bunch of nuts. The journey began.

When 'Ina became hungry or thirsty she broke open a coconut, drank the fluid and ate the flesh. They travelled on the ocean for a long time without reaching land. The nuts were running out. Only one was left, and no other drink. 'Ina contained her hunger because she had sighted mount 'Ikurangi in the distance. But they were slow in coming to land because the shark was tired with 'Ina's weight. She longed to reach the reef soon. But the shark went on slowly because it was tired. 'Ina was hungry and her bladder was full. At last, in her anger at not reaching land sooner, she took her last coconut and split it open on the shark's head. That is why there is a depression in the shark's forehead. 'Ina ate the nut.

Because of the long time taken to come to shore, she wanted to urinate. She urinated on the shark. It was said that that is why the shark smells. They drew close to the reef, near a channel that used to be known as Te ara i 'avaiki. 'Ina and her 'canoe' entered by this channel. At one end there is a hole known as a shark hole. There 'Ina said farewell to her 'canoe'. She went in search of her husband and found him at a place called Nukutere. They lived in Rarotonga, and children were born to them there.

Another version of this myth and connected song texts are provided by Gill (1876a:88-97).

The fishes summoned by 'Ina suggest a series. The tang, tiovi (Ch.4-7), is a common fish of the lagoon. The flatfish, patikiterevare (Ch.4-89), is often to be found in the flatter areas near the inner edge of the reef. The shark, mango (Ch.4-12.), is, of course, found in the open sea beyond the reef. There are echoes of the sentence:

'Ua 'oki 'aka'ou mai aia i te aue'aere i te pae tai ma te tuoro i te mangaika o te moana, to te 'akau,e to te roroka..

She returned again to the shore to cry out to the fishes of the ocean, reef, and lagoon...

This sentence shows the same three-part division of the fish according to their zones of habitation as was used as a framework for the discussion of fish categories in Ch. 4. Gill's myth variant has a similar, but slightly extended, fish sequence. The first fish is, again, the tiovi/avini. It gets only half way across the lagoon before collapsing. The second fish is the wrasse pa'oro (Ch.4-47.), also frequently found within the lagoon. It, like the tiovi, drops 'Ina in the shallows and is struck by her, so getting its distinctive markings. These two are followed by the surgeonfish 'api (Ch.4-69.), found mainly in the pools and channels near the reef. This only manages to reach the outer edge of the reef, and is transformed in colour from white to black, as a mark of 'Ina's disgust. A 'sole' (flatfish) takes 'Ina to the breakers, where she finally boards the shark. So, the fish themselves represent a progression from shore to ocean. It is also a progression towards the male sphere.

'Ina maims and pollutes her way into the masculine realm. In Gill's variant she cuts off part of her elder brother's tongue with a bamboo

fragment broken from his fishing rod. This she does to prevent him from telling her parents, with whom she has argued, of her intended departure. Not only does she maim a senior male, but she usurps his own male possession, the fishing rod, with which to do it. The shark is another male element. Tinirau is lord of fish 'from the shark down'. Being large and oceanic, it should according to the schema of concentric regions, be firmly entrenched in the masculine realm. There is a linguistic clue to support this contention.

One of the songs relating the story of 'Ina (Gill, 1876a:96) reads as follows:

Vaia te upoko, tipitake te akari
i te pane o te mango

Cleave the head, break open
the coconut
On the snout of the shark

The key word here is 'pane' a term applied both to the snout of a shark and to the human penis, the latter now being the more familiar meaning. There is an implied phallic association for the shark. Like the other fish in the 'Ina myth, it is manhandled by the woman and, further, polluted with her urine. Another instance of the usurpation of the masculine is found in Gill's variant when, in the latter part of the myth, 'Ina enters Tinirau's house and beats upon his drum. Drums and drumming were associated with men.

'Ina's relations with the male sphere are, initially, predictably negative. Yet, there is a strongly creative element. She gives to the fish their present form and markings. In marking the tiovi and pa'oro she creates tattooing patterns. The conclusion is a successful union with her husband and the birth of children. This ultimate affirmation of the married state is a clue to one possible line of interpretation. Given that

the Mangaian kopu tangata were exogamous (see Ch. 2) and that marriage was, at least ideally, patrilocal, then marriage can be seen as a movement of the female into the male. The ideal for purity of descent and continuity of authority (though not often fully realised) was the continuous male line, the tama tane line. Marriage was, then, a kind of licensed invasion of male purity for ultimately creative ends, a description which equally well fits 'Ina's mythical journey.

This is certainly not a definitive 'decoding' of the myth. The complexities of its relationship to other parts of the Polynesian myth corpus, such as the Hinauri and Kae myths of New Zealand, are quite enough to discourage any such claim. However, it does shed some light on the particular role of fish in this story. True fish, and especially those of the open sea, were, in the main, connected with men. A gift of fish from a man to a girl was highly suitable in initiating a marriage alliance (Buck, 1934:90). But, lesser lagoon and reef fish could also be taken by women in torch-fishing, by groping in rock holes, etc. They belonged less exclusively to the masculine world. The shore to ocean movement is a female to male transition which is expressed through the sequence of fish.

The association of fish in the 'Ina myth, with the human art of tattooing leads into another theme, that of the correspondences between fish and man. The pa'oro tattooing pattern illustrated by Buck (1944:131) closely resembles the markings on wrasses such as Thalassoma fuscum, known as 'pa'oro'. The origins of tattooing are specifically referred to in the 'Song of 'Ina' (Gill, 1876a:95), which begins:

E manini au na Ina e!

I am a manini (= tiovi) of 'Ina!

A ta te reu o Tautiti

The tattooing of Tautiti will be

done

E paoro ina i te apainga e!

A pa'oro 'ina carrying a burden!

However, tattooing is not the only human art linked with fish. The art of dance is also of their invention. In the myth of the origin of dancing (Gill, 1876a:100-106), Koro, son of Tinirau, follows his father secretly and learns the invocation to summon his land of Motu tapu and all the fish of the sea to the place on the north coast of Mangaia where he and his father are staying. When the fish come, they adopt half-human form and dance with Koro and his father in the moonlight. Koro later teaches the dances to the people of Mangaia. The accomplishments of men reflect those of the fish.

The passage from the 'Song of 'Ina' just quoted seems to link tattooing with the name of Tautiti. But, Tautiti, the son of the underworld goddess Miru who consumes the spirits of the dead, is elsewhere mentioned only as the patron of dancing. There may, therefore, be a metaphorical reference to the dance meant to accompany the song. However, at least one of the arts which connect man and fish is also connected, through Tautiti, with the po, the night-world of death.

The Mangaians formerly claimed that the spirits of the dead would assemble at certain reinga or jumping-off places, on the shore or the outer edge of the makatea plateau. From these they would move out over the sea, either to the pit of the setting sun or to a tree or house which would appear from the waves. These latter would withdraw into the underworld, taking the spirits with them. Once in the realm of death, the spirits would be caught in the net of Aka'anga, one of the helpers of the death goddess. In this they were thrown into a lake and nearly drowned. It was said of the dying:

Ka 'ei i te kupenga tini mata varu - He will be caught in the net
of a thousand meshes

(Buck, 1934:200)

So, in death, man became like a fish, netted from his element. Man and netted fish are both victims. The symbolism is made more explicit in relation to human sacrifice.

There were three kinds of human sacrifices forming part of the ritual in transitions between states of peace and warfare. The sacrifice before warfare commenced was termed 'ika kia motu te 'au', 'the fish to break peace or established rule'. A member of the tribe who voluntarily allowed himself to be the first killed in battle, for the sake of the ultimate victory, was the 'ika tea', 'white fish'. The sacrifice to re-establish the peace and to allow the drum of peace to be sounded was the 'ika 'akatangi pa'u', 'drum-sounding fish', or 'ika ta mangaia', 'fish of peaceful rule'. The human sacrifices to the god Rongo were carried in, and allowed to hang in, nets. (Buck, 1934:179-182; Gill, 1876a:295-7.) References to human sacrifices as fish are to be found in the traditions of many other Polynesian societies, as with the New Zealand Maori 'fish of Tu', or the Tahitian sacrificial 'fish' mentioned by the missionary Ellis (1829:212). This suggests a considerable antiquity for the fish/victim theme in the fishing cultures of island Polynesia.

There is analogy between the powerlessness of the netted fish and the negation of human power. Sacrificial victims were mainly drawn from the kopu ika, the 'tribes of the fish'. According to Buck, the Tongaiti were the first kopu ika designated as such by the Ngariki who had defeated them in battle. The Ngati Tane, Teipe, and Ngati Amai later joined the sacrifice providers (Buck, 1934:180). In each case, the role of 'tribe of the fish' was imposed by a tribe claiming military and political superiority. The Ngariki, who had established the national cult of Rongo in the days of their supremacy, were later protected from becoming eligible for sacrifice by the tribe's connection with Rongo and Mоторо. It was said that these

two atua did not approve the sacrifice of their particular worshippers. However, for the other kopu tangata to avoid such eligibility as kopu ika the most effective method was to seize the temporal power. The fish/victim role was, therefore, clearly linked with political subordination and lack of effective power.

Relegation to the status of food was, in Mangaia, as among the Maori of New Zealand, a negation of mana a sweeping away of life powers. References to cannibalism or the mundane use of parts of the body (eg. "I will use your skull as a drinking cup") would be major insults, belittling the person addressed (Williams, 1837:242). In the realm of death, with the ultimate removal of life powers, we find the captured spirits passing from Aka'anga's fishing net into the oven and, in course, into the stomach of Miru (Gill, 1890a:346). The fish is netted, cooked, and consumed. Yet, this is not the fate of all. It is those who die on the urunga piro, the 'malodorous headrest', in other words, those who die a natural death, that go into Miru's world of night. Warriors killed in battle remain in the world of light, ascending to the upper spirit realm. This is a reflection of the strong, positive social evaluation of the warrior (toa) role. The temporal power was, formerly, held by a successful war-leader. The warrior was a focus of power asserted through action. This accords with Goldman's 'open' condition of status rivalry, in which ritual authority becomes separated from the violent competition for power, in which the status of warrior takes on a new importance (Goldman, 1974). The warrior might become a 'fish' of sacrifice but he would not be the powerless victim of the net of Aka'anga. From his tribe's point of view, he is aggressor, not victim. It is interesting to note that the two kinds of fish which most clearly stand apart from the others as material forms of spirit being, and as doubtful or restricted food, are the shark and the eel. Both are associated with aggressive masculinity. Like the warrior, and unlike lesser

fish, they are not to be seen as victims. Again, the human world and world of fish echo each other.

To look further at the special role of shark and eel, it is necessary to look first to the inland realm of the animal descendants of Tumu te ana oa. Of these, the rats and fresh-water shrimp, gudgeon, and eels, only the fresh-water eels (tuna, Ch.4-97.) play a prominent part in the recorded mythology. One important, myth, that of Tuna and 'Ina moe aitu, connects the eel with the origins of the coconut tree. This is a version of the myth of a creative, phallic eel which is widespread in Polynesia, with Sina and Tuna in Samoa or Hina and Tuna in New Zealand (see Beckwith, 1976 :102-4).

In the Mangaian account, 'Ina is repeatedly approached by a large eel, which touches her as she bathes in an inland stream. One day, the eel assumes human form and reveals himself as Tuna, god and protector of fresh-water eels. In this form he becomes 'Ina's lover, becoming an eel again when they part. Eventually, Tuna announces that they must part permanently but that he will leave a boon in memory of their relationship. He instructs 'Ina to cut off and bury his eel head. From the two halves of his brain grow the two major kinds of coconut tree. The three cavities at the end of the nut are Tuna's eyes and mouth (Gill, 1876a:77-80).

This story inverts the relationship between the sex of the actors and the location that we have just seen in the myth of 'Ina and Tinirau. There the creative female penetrated the male domain of the ocean, here the creative male is found in the inland female domain of the region of the taro swamps. But this is not simply a presence tolerated in respect of a mythically specified end. The presence of active, masculine powers was continuously asserted in actual daily experience through the restrictions on the consumption of eels. As mentioned in the discussion of animals as

food, eels were forbidden eating to women in pre contact Mangaia, and were objects of revulsion to them. Gill (1876b) comments:

To this day nothing can exceed the disgust most of the native women feel at eels, which they refuse even to touch. A woman once secretly ate the sea eel. On discovering the sacrilege, the husband fled from her in horror, and never lived with her again, regarding her as possessed of an evil spirit which would be sure to kill and devour him on some future occasion.
(1876b:279)

The prohibition on eating eels is said to have been justified in terms of the 'Ina and Tuna myth, the eel having embodied the god in his approach to the woman. For a woman to eat an eel was an act in which she would come into contact with, and release, powers beyond her control. Even within the predominantly female zone of exploitation, in the area of swamps and streams, the eel stands as a marker of the inferior position of women in relation to active powers, which are essentially masculine. Such powers were also seen to be potentially present in sea eels. Though marine and fresh water eels are not overtly grouped together under a single category term, they do constitute a covert grouping, and both sets of fish were covered by the women's food taboo. This being so, it is surprising that the most obvious mythological links between fresh-water eels and sea creatures are not with their large, salt-water cousins, such as the morays, but with sharks.

Gill (1876a:80) suggests that the 'Ina and Tuna myth was designed to glorify the Amama (or Ngati Vara) tribe who worshipped the atua Te aio as eel and shark. In the case of Te aio, an ancestral figure given the status of tribal god, the connection between his two material forms is given in myth.

The great chief Te aio is killed by a priest for defiling the sacred district of Keia, the district of the national godhouse and of several major marae, by wearing red (suggesting blood). Teaio's blood flows into a stream, where it is drunk by the great eel Tuna. Te aio's spirit enters the eel which swims down to the sea. Having reached the sea, Teaio enters into a white shark (Gill, 1876a:29-30).

This myth clearly justifies rather than explains the link between eel and shark. Modern tumu korero (those knowledgeable in tradition) can provide several other examples of comparable mythical associations. An atua called Ka'u was, in pre-Christian times, said to manifest himself both inland and in the ocean. He promoted success in activities such as fishing. At sea he was invoked as 'Ka'u mango', 'Shark Ka'u', inland as 'Ka'u tuna', 'Eel Ka'u' (informant Tiriama Naeiti). Similarly Tereevangeria Aratangi has recorded an account of Papango, said to have been worshipped by the Ngariki, who appeared inland as a great eel, at sea as a shark. Evidently, we are presented with something more than a chance combination of these creatures within a single myth. In looking towards an explanation, we can think again of connection of both eel and shark with active, aggressive masculinity. Both have potential phallic associations. Both are seen as suitable loci for active spirit power. They occupy the two most important zones of activity, the practically and ideologically important zone of men's fishing, and the inland zone of taro agriculture, settlement and the marae. Within these regions, they may have performed omen functions. Certainly, Papango was supposed to make occasional appearances at his marae in eel form, an omen of chiefly death.

It is still not really clear why a shark rather than a sea eel should be paired with the tuna. No really satisfactory solution can be offered on the available evidence. The fact that the sharks are more truly oceanic than

the reef-dwelling eels, entering more fully into the high-prestige realm of men's fishing, may be significant. But this is highly speculative. Suffice it to say that, in myth, shark and fresh-water eel form an association which seems unrelated to any mundane classification, either based on common location or recognised physical resemblance. What they do share is their link with active masculinity, the shark, a supreme aggressor in the male realm; the eel, a phalliform intruder into the female realm.

The final myth to be considered, that of Matarau and the fish of Rongo, focuses attention upon Magaia's history of inter-tribal competition and warfare. The main account given here is a modern version, freely translated from the telling of Iviiti Aerepo of Tamarua. He claims that this version is that of the Tongaiti tribe.

In the time of the ancestors, a man called Uru lived in the district of Mangonui, where the village of Tamarua now is. He lived at Akarau, with the marae of Aumoana nearby. He had a pet lizard (moko 'angai = fed lizard). It was a gecko named Matarau. It was the guardian of the cave where the tribe kept their valuables. It was fed on uarenga. This was one of the first kinds of banana in the land of Mangaia.

Uru always went fishing at night and, when he did, he carried the lizard on his back down to the sea. He would leave it on the shore rocks, below the pools. There was a good channel to the sea called Aeru. The lizard stayed in its place and turned its head towards the ocean. Its eyes lit up at night and indicated the channel to Uru when he was out at sea. He would use them to guide his canoe back to shore. When he got back to the shore he would pick the lizard up and carry it home on his back.

Whilst fishing, Uru caught an 'akura (swordfish). It was said of this fish that it should be offered to Rongo to be eaten, as also the 'onu (turtle). When a turtle was caught it would be taken to Rongo. A man would never keep such a fish (mangaika) for himself. Uru was pleased at catching the swordfish. He did not take it to Rongo. It was dried to preserve it, and given to Matarau to guard. He looked after it and stayed beside it.

One day, a little later, Rongo heard that there was a swordfish at Mangonui. He sent a messenger to fetch the fish. But he was not allowed to bring it back to Rongo. It remained with Uru's god, Matarau. The messenger returned, and explained that he had been unable to obtain the fish. Rongo made his plans to get the fish. His spirit-helpers (purapura) went to try and steal it, but were not, at first, successful.

The first spirit-helper to be sent was the tanga'eo (kingfisher). But it did not succeed because it made too much noise as it flew along. Matarau jumped up and grabbed at it. Rongo next sent the second of his spirit-helpers, the pepe tako (black butterflies). But they were not successful in getting the fish of Matarau. This was because they could not raise it up. They dropped it because their chant was not correct. Matarau woke up, saw them, and they went back to Rongo.

Rongo sought a new plan to gain the fish of Matarau. He sent the third of his spirit-helpers, the pepe renga (yellow butterflies). These yellow butterflies left at the time when the leaves of the aoa tree were ready to fall. At the place where Matarau and the fish were there was an aoa tree with yellow leaves. The yellow butterflies came to the tree and rested there. Matarau, sleeping beside the fish, saw nothing of the butterflies. They remained in the

tree until the wind shook it and the leaves fell. The yellow butterflies descended to the fish amongst the leaves. They grasped it and raised it up, performing a chant (pe'e).

The fish will be carried off. Raise it up.

A ritual of chieftainship,

A fish of Rongo.

Carry it off, bear it off.

This time, the yellow butterflies bore away the fish. Matarau awoke at the noise of the chant and found that the fish was not there. He set off in pursuit, but could not overtake the butterflies. So the fish of Matarau came to Rongo.

There are three published variants of this myth (Gill, 1876a:291-3; Clark, 1896:140-6; and Buck, 1934:179). Each of these treats the story as an allegorical account of an incident in Mangaian history, a conflict between the Ngariki people and the Tongaiti tribe over a human sacrifice. As has been mentioned, Matarau was the principal tribal god of the Tongaiti.

Rongo, though later having a national, pan-tribal cult, was initially supreme god of the Ngariki. According to Gill and Clark, one particular incident from historical tradition forms the foundation of the myth. This is the taking of Vaioeve, a member of the Tongaiti tribe, as a sacrifice to Rongo after the battle of Teruanonianga, the first battle between the Ngariki and Tongaiti. The tradition suggests that an attempt was made,

by the defeated tribe, to steal the sacrificial victim from the Ngariki victors. Gill (1876a:293) states:

The.., ancient myth refers to the only instance related of stealing away the sacrifice from Rongo's altar; for it is well known that fish were not offered to that god. His fish were human victims.

Yet, Iviiti's account clearly states that two kinds of fish of the non-human variety were required offerings at the marae of Rongo, the swordfish and the turtle. Gill, himself, recounts a legend which tells of the turtle offering taken to the Shore High Priest at the marae Orongo (Gill, 1880:1). It seems that his missionary concern to emphasize the horrors of the old religion may have led him into overstatement. Possibly he makes a distinction between offerings taken to Rongo's priest and offerings to the god himself. Yet, both went to the marae, acknowledging both the god and his priest. Iviiti makes no distinction. In time of war the 'fish of Rongo' was indeed a human victim, but in peacetime offerings of selected sea creatures made at Orongo were also Rongo's 'fish'. The idea that a non-human 'fish' should be taken to Rongo's main ritual centre is not simply an allegorical conceit of the Matarau myth.

However, the phrase 'the fish of Rongo' may be interpreted in yet another way. 'Te Ika o Rongo' is the name given to the island of Mangaia itself in ceremonial speeches. The island is envisaged as a fish lying with its head to the east, divided in halves along the length of the body, and into three sections on each side of the central division. The six portions of the fish correspond to the six major land districts (see Buck, 1934:126).

Tamarua district	<u>Te pa'uru i katau</u> - Head on the right.
Ivirua	<u>Te pa'uru i kaui</u> - Head on the left.

Veitatei	<u>Te porī i katau</u>	- Body on the right.
Karanga	<u>Te porī i kaui</u>	- Body on the left.
Keia	<u>Te 'īku i katau</u>	- Tail on the right.
Tavaenga	<u>Te 'īku i kaui</u>	- Tail on the left.

References to these divisions are still to be heard in present-day Mangaian public addresses.

There is a correspondence between this conception of the island as a fish and that which relates its divisions to the body of the primeval spirit Te Manavaroa, said to lie buried in the central hills with his head towards the east. A connection between Te Manavaroa, the division of the island, and the ritual division of a real fish (or, possibly, a cetacean) is established by Gill:

Whenever, in the olden time, a large stranded fish was obtained, this fancy guided the cutting up and presentation of the different parts of the fish. The head, as a matter of course, went to the two chiefs at 'the sun-rising', where the head of The-long-lived (Te Manavaroa) was supposed to lie. The central part of the fish would go to the two chiefs of the central portion of Mangaia....The tail was divided between the two remaining chiefs whose homes are at the 'sun-setting'.

The larger portions were subdivided, until each individual had a minute share. But these subdivisions were not made until the name of the chief of the entire district had first been proclaimed.

(Gill, 1876a:129)

This may be compared with the ritual surrounding the human 'fish of Rongo' sacrificed for the confirmation in office of a new Temporal Lord of Mangaia and the sounding of the drum of peace. The body of the victim was taken to Orongo.

The 'praying king', with a bamboo knife, now cut off the ears of the victim; the right ear representing the right or southern part of the island; the left ear representing the left, or northern half. Each ear was then subdivided into as many small portions as might serve to represent the various minor districts (tapere) of each half.

At the question of the High Priest of Rongo (Gill's 'praying king') the man who was to be the new Temporal Lord proclaimed himself and his office was confirmed by the silence of the assembled warriors.

The chief now resumed his seat on the ground, but to him as supreme temporal lord, no part of the victim was given. In prescribed order, the names of all the district chiefs and landowners were proclaimed, each receiving from the hand of the king a portion of the ears of the victim wrapped up in a tī leaf. The great temporal chief invariably received the first portion in the inferior capacity of a district-chief. These bits of human ears were deposited in the different family maraes. They constituted an investiture to all offices and right to the possession of the soil. Without a human sacrifice there could be no formal possession of dignity or estate (Gill, 1876a:297)

There is, then, a complex interrelationship between fish, human sacrifice, and the land of Mangaia. The rights in possession of Te Ika o Rongo are not simply rights of offering and sacrifice, but rights to the determination of holdings in the land itself. Whether the myth of Matarau and the fish of Rongo relates to a specific historical incident or not, does not affect a broader interpretation of the myth which considers these factors. It is difficult not to accept that the story does concern the conflict between the Tongaiti and the Ngariki, represented in their gods. The dispute over fish offering, over the taking of human sacrifice, over control of land and resources are parallel aspects of one struggle, each implying

the other. The conflict of the myth may be taken at any or all of these levels.

Both Buck (1934) and Goldman (1974) see early Mangaian history in terms of a struggle by the Ngariki to maintain the unity of the secular and the ritual authority within their tripartite tribe, by retaining both the priesthoods of Rongo and the temporal lordship. The Tongaiti were the first challengers to their pre-eminence. Initially these newcomers were defeated and designated as a tribe of sacrifice, but later they succeeded in winning the temporal authority. While competition for temporal power became general, all the tribes becoming involved, the Inland and Shore High Priesthoods of Rongo, the supreme ritual authority, remained in Ngariki descent lines. The High Priests were supposed to remain aloof from temporal political affairs.

These events form the background to the Matarau myth. It is possible to read it either in terms of the earliest history, with the Ngariki re-asserting their total authority, or in terms of the later period, with the assertion of the continued authority of the cult of Rongo despite the challenges to Ngariki power. The published versions of the myth make this challenge rather more dynamic than in the variant given here. They have Matarau stealing the fish from Rongo, who is then obliged to steal it back. Since Iviiti's version is said to be of Tongaiti origin, and the informants of Gill and Buck were mainly Ngati Vara and Ngariki, there may well be differences of tribal viewpoint. In the Tongaiti version Rongo's right to offerings is not acknowledged; the fish is withheld. In the others his right to possession is usurped; the fish is stolen.

In looking at this handful of myths there has been no pretence of a full analysis of any. The aim has been to throw some light on a few strands in the complex network of the mythology, those involving animals.

To do this, myths could not be treated as self-contained entities. A grounding in the overall worldview was required. For instance, an appreciation of the division of the Manganian environment into primarily male and primarily female spheres of action was of considerable importance in seeking for the significance of 'Ina's voyage to Tinirau and of the sequence of fishes she encounters. There was also a need for social and historical context. The story of Matarau would remain a highly intractable animal fable without reference to Manganian religious organisation and political history.

Some groupings, such as those of ocean fish, reef fish and lagoon fish, which appear in the story of 'Ina and Tinirau, are common to myth and to everyday usage. But, in establishing broader symbolic structures, myth creates, or makes explicit, other categories or groupings of categories. The links between shark and eel go beyond mundane considerations of physical resemblance, and appear to be founded in the symbolic associations which the particular characteristics of both evoke. The animal descendants of Tumu te ana oa take on a unity by virtue of a principle of zonal location, a principle which assumes special importance in the creation of a particular image of the physical and social environment. The concentric/zonal and radial/segmental conceptions of the island put forward in the first part of the chapter are also evident in the further accounts of myth and ritual. 'Ina's mythical voyage may be seen in terms of a zonal transition in the concentric model. The relative position of the male and female seems central to the myth. It concerns ascribed status. The radial model is made completely explicit in the division of 'the fish of Rongo'. Despite its connection with a religious cult and ritual shared by all the Manganian tribes, the 'fish of Rongo' is still intimately linked with competitive political relationships, with status rivalries. Animal imagery is found in each area of status relationships.

The contrast between the image of the fish victim and that of shark and eel must sound a note of warning to those who would treat Culture's relation to Nature as a relation to some monolithic unity. (For instance, Ortner, 1974, is incautious in relating Nature generally to the dominated.) The netted fish and the shark occupy different ends of a scale of powers. The netted fish is dominated, food par excellence, its fate highly determined by man. The shark is danger, related to spirit activity, its status as food doubtful. In a sense, with regard to power relations, Culture may here be seen as mediating different areas of Nature. To put it another way, there are 'natural' limits at both ends of the power continuum of Manganian society.

One thing is evident. The relationship between the categories of the natural world and social categories should not be viewed solely in terms of relative social proximity (in the tradition of Leach, 1964). The forms of the relationships between members of categories, the nature of their interactions, must also be considered. In the wake of the totemic tradition, it has often proved too easy to assume that the animal categories expressed in myth and ritual symbolism relate largely to kinship, affinity, and formal group membership in their social correlates. Polynesian materials urge us to look towards issues of power, status, and rank.

CHAPTER 11

SOME CONCLUSIONS.

In this final chapter we return to some of the issues outlined in the introduction, to expand upon them in the light of the materials offered in the body of this thesis, and, to examine some fundamental principles.

Issues of Classification

Let us turn once more to the question of the nature of classificatory structures. When I began my research in the Cook Islands the dominant model of 'folk classification' continued to be the taxonomic tree. I have indicated in my opening chapter that, particularly in the past four years, this model has come in for considerable criticism (e.g. from Hunn, 1976, 1977; and Randall, 1976). In Chapter 3 and in the discussions which concluded the following four chapters, I have suggested some problems for the presentation of the relations of Manganian animal categories in standard taxonomic form. In connection with the main descriptive catalogue, a taxonomic presentation was not adopted. At this stage, it is clearly desirable to further justify this decision with some practical and theoretical criticisms of this model.

Consider, then, the definition of taxonomic structure (after Kay) given in Chapter 1:

- '1. It is composed of a finite set of taxa (non-empty sets) in conjunction with.....'

The main point to be noted here is, as Hunn has emphasized, in this model we are told nothing of category formation. Taxa are taken as

given. The limits of the classificatory structure depend upon their pre-definition. We shall be returning to this restriction a little later, in the discussion of covert taxa.

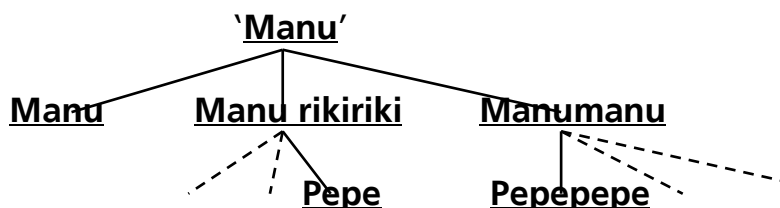
'2.a relation of the strict inclusion of sets.'

(A set A strictly includes set B only if every member of B is also a member of A, and at least one member of A is not a member of B.) It is the strict inclusion relation that ensures the transitivity of taxonomic structures. However, both Hunn and Randall have noted instances of non-transitivity in the relations of folk-biological categories. I was made practically aware of this problem when my first Manganian informant (N .Tomokino of Tavaenga) explained that he felt that smaller pepe (butterflies and moths) were manumanu (small insects or other small arthropods), whereas larger pepe were not. Eminently sensible as these judgements may be in relation to his interpretation of 'manumanu', an interpretation which indicated that the category could not accommodate the full size range of the butterflies and moths, they do indicate a breach of the principle of strict inclusion. Not every member of the subordinate set is a member of the superordinate set.

It might be pointed out that not all Manganians would necessarily agree with the assertion that 'some pepe are manumanu'. Some would exclude all butterflies and moths from the 'manumanu' category. A few would include them all (with the exception of the sphinx moths, which are not pepe). Individual informants did not always provide consistent judgments with regard to the size limits of 'manumanu'. But, while it can be argued that all Manganians do not call the strict inclusion relation into question by their category judgments in this area, that any do so challenges the

universality of this principle of organisation in creating an all-embracing taxonomic structure.

A possible taxonomic resolution could be found in the case of those informants making the distinction between large and small Lepidoptera explicit in the division of 'pepe' and 'pepepepe'. In such cases it may be said that pepepepe are manumanu, pepe are not (perhaps they are manu rikiriki). One might then propose the taxonomic tree:



('Manu' is introduced here to indicate the underlying unity of Manu and Manumanu, see C 3.)

This is a cumbersome device which seems to me to do violence to the Manganian conception of pepe and pepepepe as essentially 'the same kind of thing', simply differing in size. It is more economical and less of a distortion of informants' views to accept that categories of different levels of generality need not be integrated into a single logically uniform structure. Strict inclusion and transitivity need not hold for all category relations between different levels. In any case, the inherent vagueness of boundary, or fuzziness, of categories such as 'manu' and 'manumanu' (the line of division between these two being highly dependent on the graded variable of size) is difficult to reconcile with notions of 'strict' inclusion, though it would accord better with the principles of fuzzy set inclusion (see Kempton, 1978; Lemaitre, 1977).

- '3. There is one taxon which includes all others - a unique beginner.'

The way in which this condition upon taxonomic structure is regarded depends upon the manner in which one views the connection between structure and terminology. The total taxonomic organisation of the Mangaian animal realm can be upheld only if one accepts a covert unique beginner. Here, again, one is faced with the problems of the precise definition of category boundaries necessary in a strictly taxonomic structure. If the notion of a covert beginner is rejected, it is still, of course, possible to analyse the Mangaian animal world in terms of a number of lesser taxonomies - that of 'manu', - that of 'mangaika' etc. There are, however, some fairly large groupings of animals, such as the shellfish, where there is virtually no overt taxonomic organisation, where there is a lack of what might be interpreted as labelled higher order taxa.

- '4. Taxa immediately included by a taxon of immediately superior level are a perfect partition of that taxon. That is, when a set is divided into sub-sets, each member of the original set is placed in exactly one sub-set.'

The problem here is that it is often the case that only some members of a higher order category are overtly consigned to categories of lower order. Partition is not exhaustive.

So, returning to the small insect category 'manumanu', it can be said that some manumanu are ongaonga (small flies), some are pepepepe (small Lepidoptera), and some are namu (mosquitos), but there remain many more manununu which are never further specified. They are just 'other kinds of manumanu'. This type of example can be repeated many times:

Kokiri

= Kokiri pa'a + kokiri moana +

spoken of in the preceding paragraph should not be regarded as covert taxa. If the 'named taxa only' principle is maintained, the lowest level of each branch of the taxonomic tree is, as it were, where the names come to an end. The terminal taxon can be identified because its labelling category term has no simple hyponyms. If, however, we admit the possibility of lower level covert taxa, the problem of identifying a terminal taxon is considerably increased.

It is evident that animal categories of increasing refinement can be indicated by the elaboration of specifying descriptions. It is conceivable that, in a particular setting, I could provide descriptions which would indicate mainly locally present sub-sets of the category 'dog', down to the point of descriptively specifying particular dogs. Such fine distinctions go beyond what we would normally wish to consider and animal classification. But where are the lower limits of the taxonomy to be located?

It might be argued that I am confusing classificatory ability with a classification as such, which is to be considered as knowledge, knowledge which is shared to some significant degree by the members of a community. The successful and consistent application of a terminology, the consistent use of the animal category terms of a language, is an indicator of such shared knowledge. The use of words does act as a guide in the processes of concept formation (as emphasized by Vygotsky, 1962). Once one moves from a well-defined terminology to ad hoc descriptive formulations one seems to be moving from the shared to the idiosyncratic, from what is significant in common everyday experience to that which is of importance in certain less typical contexts. Descriptive formulations may be seen as building out of the basic terminological framework. But the line between name and description is not always clear cut. The relation between a taxon and a term associated with it has

traditionally been treated as one of naming. But, when Mangaians distinguish between 'pepe renga' (yellow butterfly) and 'pepe tako' (black butterfly) are they naming or describing the two insects? Perhaps it is possible to judge by identifying a local term equivalent to 'name'. This is, of course, a problem of interpretation in itself. However, it is usual to render the Cook Islands Maori 'ingoa' as 'name' and 'Ea'a te ingoa?' as 'What is the name..?'. Attempts on my part to establish what counted as an ingoa in cases such as 'pepe tako' and 'pepe renga', or even in relation to expressions such as 'manu rikiriki torotoro'aere' (little creatures that creep), did not produce unambiguously clear results. There was variation in individuals' interpretations. I doubt that, even with further investigation into the use of 'ingoa' all questions of the status of short descriptive phrases could be settled by reference to the indigenous concept of 'naming'.

But none of this discussion really touches fully upon the point that I am aware of the existence of distinct types of creature, let spiders again be the example, for which I have no distinctive name. I feel these types to be more than arbitrary divisions of the phenomenal world and not solely distinguished in relation to some specific context of activity. My intuition tells me that they are of the order of things that could be named. The fact that I am able to name some types - 'harvestman', 'money spider', etc. - tends to confirm this. The intuition that there is an order of things that could be named, though they are not, seems to be shared by the Mangaians. This came out clearly when insects were discussed. Informants were evidently aware of the poverty of their terminology. The remark "Maybe our ancestors had a name (ingoa) for it" is a telling one.

Mangaians, too, seem to have some notion of 'natural kind', of especially significant units within the animal world, which may or may not be reflected in their terminology. I can theorize my intuitive 'kind' in terms

of a maximal group of animals breeding true to itself, a true 'folk species'. I firmly believe that 'that sort of medium-sized, golden-bodied spider with black markings that I saw building large webs in the Mangaian bush' breeds with others of its kind to produce essentially similar individuals. On the whole, Mangaian also embrace a notion of breeding true to kind (with allowances for life-stage transformations). The most notable exception to this are the beliefs concerning the birth of the conger eel (pu'i), which is held by some to be born from the sea-cucumber ngata (see Ch.4-95.). Beliefs concerning the birth of animals from parents of a different kind have certainly been reported from other societies (e.g. see Dwyer, 1976b). It can by no means be assumed that the 'natural kinds' recognised in any culture will be seen as self-reproducing. Even in my own case, the theorization in terms reproduction is evidently secondary to my decision that a group of creatures bear sufficient resemblance to each other to constitute a kind.

Philosophically, this seems to be related to the problem of natural kinds as discussed by Quine (1969). He proposes a basic ability to make similarity judgements which is part of man's evolutionary heritage, and so innate. The ability to respond to categories of objects in a consistent manner rests upon such primitive similarity judgements, and is an evolutionary necessity. No total theorization of similarity is, at present, possible. Notions of attribute, common class membership, etc. seem, themselves, dependent on the notion of similarity. Yet, similarity is theorized in particular restricted fields of enquiry, as in zoology it may be presented in terms of evolutionary theory. Theorized and untheorised similarity can, and do, co-exist. I can judge that a marsupial mouse is theoretically more similar to a kangaroo than to an ordinary mouse, but still judge the marsupial and ordinary mice to be more of a natural kind. If Quine is correct, and at the basis of both my own and Mangaian

distinctions of animal types there are untheorised similarity judgements, it is hardly surprising that I am finding myself forced to talk in terms of intuitions and feelings.

In the realm of intuition I am hardly on happy ground for formally defining the limits of a taxonomic structure, for deciding what is to be considered to constitute a taxon; and, as we have seen, a strict taxonomic model has a number of other indeterminacies and anomalies to cope with. For those writers, such as Bulmer, who use taxonomy as a descriptive device rather than endowing it with theoretical significance, many of these problems can safely be set aside. If, however, one seeks for some universal principle of cognitive or semantic organisation (an ideal inherent in much early ethnoscience and still very much alive in writers such as Werner) strict taxonomy exhibits serious failings.

The most complete and coherent alternative to the taxonomic approach is that of Eugene Hunn. This deserves some further consideration. Firstly, Hunn makes an important distinction between inductive and deductive taxa. He explains:

Deduction generates categories a priori by the statement of a defining rule. Such categories are known by reference to a set of defining features...., the defining features of deductive categories must be linguistically codable in order to be communicated without direct reference to examples of the category.....

Inductive categories must be created by abstracting a configuration from a sample of the membership of the category. No defining rule is given....., the characteristic configurations of deductive categories are entities unique to each category. (Hunn, 1977:46)

Inductive taxa are said to constitute the core of folk biological classification, providing a 'general purpose' (see Ch.1) division of the natural world, reflecting actual discontinuities in nature, being psychologically basic, and showing almost perfect correspondence to scientific taxa. Involving unanalysed, non-criterial similarity judgements,

with an emphasis on the ecological significance of categories, there are clear links between inductive taxa and the 'natural kinds' just discussed.

The distinction between the deductive and inductive generation of categories allows Hunn to develop an explanation for the problem of non-transitivity of relations between different taxonomic ranks. Because of their different principles of formation, there is no guarantee that a deductive superordinate category will include the whole of a lower order inductive category. The relation between 'manumanu' and 'pepe' could be interpreted as follows:- 'Manumanu' is a deductive category, its boundary dependent upon a criterion of very small size, a criterion which is immediately indicated linguistically by the reduplication in the lexeme. 'Pepe', on the other hand, is an inductive category dependent for its existence on the perception of the overall resemblance shared by the butterflies and moths. Size differences may be noted by distinguishing the 'pepepepe', but the overall unity of 'pepe/pepepepe' is not in question. There remains a disjunction resulting from the contrast of deductive and inductive modes of formation.

The deductive/inductive distinction can usefully be applied to other Manganian animal categories. 'manu rere' (flying manu), the 'birds and bats' category, may be interpreted as deductive, membership being dependent upon the specified attribute 'flying' (in conjunction with certain size considerations). Flying-foxes were judged to be manu rere, though observed to be, in some ways, more similar to rats than to the birds which are the typical category members - they do fly. Conversely, some informants were doubtful whether chickens could really be manu rere, though knowing them to closely resemble the typical category members - they are not true fliers. The ambivalence about the classificatory position of these two creatures can be seen in terms of a conflict between an

inductive appreciation of the underlying unity of the birds and the deductive definition of 'manu rere'. It might at first appear that, since it is rule-bounded, one might expect little indeterminacy or fuzziness at the borders of deductive categories, or where such indeterminacy is

apparent, to be able to see it, as in the case of 'manu rere', in terms of a conflict between inductive and deductive interpretations. The 'fish' category 'mangaika' could be seen in this light, the uncertainties over the inclusion of fresh-water fish reflecting a conflict between the perceived resemblances and a covert deductive rule specifying 'sea creature'. However, in the cases of 'manu rikiriki' and 'manumanu', where the defining rule relates to the continuous variable of size, it is clear that considerable indeterminacy arises from the variable interpretation of the rule itself. Different informants applied different size limits.

It is worth noting that, even if a category has its boundaries determined by a rule, and may thus be seen as deductive, it may still have an inductive core of 'typical' members. In his later work, Hunn (1977:59) has preferred to speak of the intrusion of deductive rules to determine category boundaries, rather than of deductive categories as such, underlining the co-occurrence of inductive and deductive interpretations. In the case of the 'manu rere', the birds are evidently the typical members the category. But, could the typical members of a rule-bounded category be those that most closely conform to the defining rule? Such a position may be tenable where the rule involves a continuous variable - the smallest insects are generally considered to be the best examples of 'manumanu' - but in many other cases it is clearly absolutely untenable. The flying-fox is not seen as any less of a flier than many birds, but it is evidently not a typical flying manu. Rosch (1975; 1978) has suggested that category prototypes (or, more accurately, judgements of

prototypicality) reflect the redundancy structure of the category as a whole, developing from the maximisation of similarity, which may be expressed in terms of shared

attributes. This would be an inductive process. What creatures are, in fact, indicated as typical members of a category is, of course, influenced by the relative familiarity of the various species or genera. Familiarity is, itself, a product of several factors such as actual numbers present, possession or non-possession of striking visual features, availability with current techniques of capture, and general issues of use or cultural significance.

Hunn has proposed a reassessment of Berlin, Breedlove, and Raven's distinction of taxonomic levels or ranks. As explained in the opening chapter, these authors define their taxonomic ranks both in relation to principles of taxonomic structure (e.g. Unique Beginner is the taxon which includes all others) and in terms of the structure of labelling lexemes (e.g. Generic taxa are usually labelled with primary lexemes, Specific taxa with secondary lexemes). Hunn (1977:45-55) argues the need for a 'psychological' distinction of ranks, to overcome some of the problems of differentiating taxa in terms of lexeme types and to provide independent grounds for checking the assertion that particular taxa types and lexeme types are in habitual association. Like Berlin et al., he accords special status to the generic level and attempts to make more explicit the idea that the generic taxon represents an obvious discontinuity in nature. Taxa are to be seen as regions of resemblance, clusters of the percepts of similar organisms, within a classification space (this notion of 'space' being understood as a metaphor, and allowing the simultaneous presentation of all percepts. Hunn, 1976:515.) One can then think in terms of the distances between the taxa in the classification space. Hunn

suggests an index of the 'perceptual salience' of a taxon directly proportional to the size of the gap between it and its nearest neighbour taxon, and

inversely proportional to the degree of its internal heterogeneity. A potential taxon is deemed to exist if the largest gap between nearest neighbours among the clusters which would constitute its sub-taxa is less than the smallest gap between the cluster which would constitute the potential taxon and the cluster of any other taxon. The Critical Ratio (index of perceptual salience), External minimum gap:Internal heterogeneity, will be at a maximum for generic taxa, marking them as the most perceptually salient by definition. These taxa are inductive. However, Hunn also writes:

Specific, generic, intermediate, and life-form taxa and the unique beginner, in that order, reflect a continuum of increasing heterogeneity among inductive taxa. The boundaries between adjacent taxonomic ranks are thus arbitrary..
(Hunn, 1977:51)

Specific taxa are simply inductive taxa, not themselves generic, that are subordinate to a generic taxon. The unique beginner, life-form, and intermediate taxa are simply inductive taxa superordinate to one or more generic taxa.. (Hunn, 1977:53)

So, though Hunn retains Berlin's suprageneric ranks as a descriptive device, without significant revision, no absolute divisions between them are held to exist. They are psychologically arbitrary. Hunn (1977:54) gives examples of taxa which seem to exhibit characteristics of more than one rank.

I find it difficult to locate certain Manganian categories within a strictly defined ranking system. What, for instance, is the rank of the

broad 'crab' category 'karai'i'? (see Ch. 7). Talking in the terms of Berlin and his colleagues, this taxon is labelled with a primary lexeme and immediately includes sixteen other taxa also labelled with primary lexemes, sixteen 'generic' taxa. 'Karai'i' might initially be taken as a 'life-form' taxon. But it is clearly much less inclusive, much less heterogeneous, than the major 'life-forms', 'mangaika' and 'manu'.

Informants were clearly aware of some difference in order or scope. I was left in no doubt that to ask whether a mangaika is a manu or vice versa, is ridiculous. There were strong reactions to the contradiction embodied in the question. Reactions to the question "E manu te karai'i?", "Are karai'i manu?", were not quite the same. Though it was generally concluded that crabs were neither manu nor mangaika, the question of whether they might be either was not regarded as entirely lacking in sense. I did, in fact, record one instance of the term 'manu' being applied to crabs. In addition, karai'i (true crabs), unga (hermit crabs), and koura (lobsters and shrimps) are viewed as similar, more closely linked to each other than to the mangaika or manu. One might postulate a covert 'crustacean' category including all three groups. Perhaps such a covert category could be granted 'life-form' status.

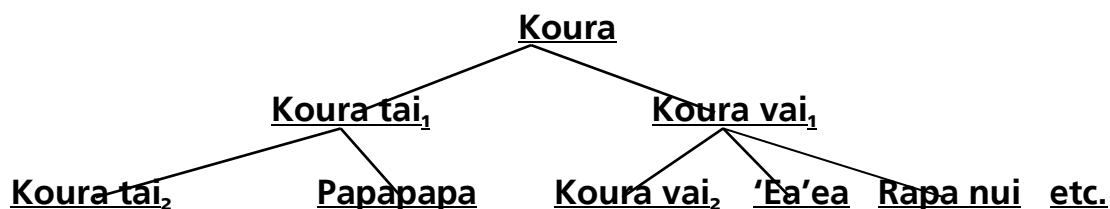
In that case 'karai'i' would have to be a named 'intermediate' taxon, this level of 'intermediate' taxon being the most nebulous of Berlin's ranks, mainly comprising covert categories 'of greater inclusiveness than folk generic categories but not yet life-form categories' (Berlin, 1972:73).

'Unga' has the characteristics of a 'generic' taxon. Being, itself, labelled with a primary lexeme, it includes taxa labelled with secondary lexemes

(unga kura, unga puku'ara, etc. - see Ch.5.-53.). That a minority of informants were willing to include 'unga'

within 'karai'i' is an indicator that the two categories are not seen as of exactly the same rank or order of generality. What rank should be ascribed to 'koura' is much less easy to establish.

If 'koura' only included 'koura vai' (fresh-water shrimp of genus Macrobrachium and 'koura tai' (spiny lobsters of the genus Panulirus) it would appear to be a 'generic', labelled with a primary lexeme, partitioned into 'specifics' labelled with secondary lexemes. However, 'koura' also includes 'ea'ea', and 'rapa nui' (see Ch.5-55., 57., 58. and 59.), which, on labelling criteria, appear to be 'generic' in their own right. The objections to treating 'karai'i' as a 'life-form' comparable to the major 'life-forms' hold equally well for 'koura'. So, one is forced back to the conclusion that, again, we are dealing with a member of the, supposedly rare, class of named 'intermediate' taxa. The position is further complicated by the fact that some informants also used the terms 'koura tai' and 'koura vai' for broader categories of marine and fresh-water crustaceans, suggesting the hierarchy:



If this structure is assumed, it is not at all clear to me what rank should be assigned to 'koura'. The deductively bounded 'koura tai₁' and 'koura vai₁' appear to occupy the 'intermediate' level. I would seem to be forced to accept the idea of a 'life-form' comprising only six generics and whose members are seen as obviously similar to those of the 'generic' 'unga' and the 'intermediate' 'karai₁'!

This is all somewhat confusing - and that is, of course, the point being made. I have offered an example of the problems that can arise in attempting to strictly define category ranks, in the tradition of Berlin, Breedlove and Raven. The difficulties encountered in unambiguously placing categories such as 'karai₁' or 'koura' lend support to the contention that rank boundaries are essentially arbitrary. Hunn (1977:51) is also willing to recognise the choice of a 'unique beginner' as arbitrary.

In Hunn's model of classification the overly powerful requirement of perfect partition (4. above) is relaxed. The exhaustive partition of the classification space cannot be expected, due to limitations on data.

According to Hunn, the...

...uneven contour of classification space results from the fact that inductive classification requires a minimal data base, which may be inaccessible to or ignored by the classifier.

(Hunn, 1977:57)

He observes that, in the Tzeltal classification...

...many invertebrate species are simply left out of the system of named taxa or are peripherally related to named taxa, or they may be attributed to a residual category..... This fact is no doubt

due to the multiplicity of invertebrate species, their small size, and their cultural insignificance.

(Hunn, 1977:56)

A 'residual category' is said to exist where one or more organisms are seen as members of a category X but not as specified kinds of X. So, repeating an example given earlier, the Manganian 'butterflyfish/moorish idol' category 'ti'iti'i' can be divided into 'ti'iti'i 'apai reva' and 'other ti'iti'i'. The 'other ti'iti'i' are recognised to comprise several distinct types, but they are not specified in the terminology. This would be a 'residual category' in Hunn's terms. But, whether the failure to terminologically distinguish further ti'iti'i types can be attributed to insufficiencies of the data base is a moot point. Fishermen showed themselves to be very aware of the many differences between species. The appearance of a joky colloquialism, 'ti'iti'i tutae puaka', used to refer to one of these, is an indicator of this awareness. Data is certainly not inaccessible, and is only ignored insofar as it has not been used in refining terminology. Perhaps, in this case, Hunn would argue that, since most of the variation between butterflyfish species which is immediately apparent to the observer lies in differences of colour pattern, shape and behaviour being fairly similar, the clusters of percepts are not sufficiently well-separated to trigger what he refers to as the 'naming threshold'. This 'naming threshold' is simply that degree of perceived distinctiveness at which a category is likely to be labelled. But, in his earlier paper (Hunn, 1976) he argued that classificatory gaps and residual taxa could be viewed as areas of classification space in which the conditions specified for the

existence of a potential taxon, or pre-taxon, were not met. This stronger claim seems to be implied in the statement concerning the data base for inductive classification. Though the excesses of the perfect partition requirement are effectively disposed of, I suspect that any claim that

residual taxa are necessarily correlated with failures of inductive classification may itself be too powerful.

I would suggest that it is useful to recognise two types of residual category. The first of these is exemplified in Mangaia by the 'other manumanu', a heterogeneous group of unspecified small insects or other arthropods. Hunn's remarks about insects in the environment of the Tzeltal apply equally well here. The creatures are very small, very numerous, and of virtually no interest to the people of the island, except when they become pests. Little attention is paid to them. They are seldom, if ever, examined closely. It may well be that the shared data base necessary for the exhaustive, inductive classification of these creatures does not exist. The same might be argued for the 'other karai'i', a heterogeneous group of comparatively little-known small crabs which are never sought as food. The case of the 'other ti'iti'i' is rather different. The fish may not be important as food, but they are very well-known. It could be said that the 'other ti'iti'i' are what is thought of as 'typical ti'iti'i' the ti'iti'i 'apai reva' being singled out because of its distinctive shape and, possibly, its peculiarities of behaviour. The same pattern can be seen with the triggerfish. Some of the best-known and most plentiful species are referred to simply as 'kokiri', while less common types, such as the ocean-dwelling kokiri moana and kokiri 'uku tea are further distinguished. I would hold that the psychological status of the 'residual kokiri' is not the same as that

of the 'residual manumanu'. Perhaps it might be said that the 'residual kokiri' has two aspects. One aspect is truly 'residual', in that very little-known triggerfish would be identified simply as 'some kind of kokiri'. The second is a 'common' or 'typical' aspect, very familiar species just not being differentiated in the terminology.

Where a 'residual category' displays this second aspect, it does not seem reasonable to suggest that the basis for inductive classification is not available. Conversations with informants indicated their shared awareness of inductively defined divisions among the common kokiri (Rhinecanthus spp., Pseudobalistes sp., etc.). Such covert distinctions are equivalent to the 'unnamed types' referred to earlier. Clearly, they are also what Bulmer (1970) refers to when he speaks of the Kalam recognising objective discontinuities in nature below the level of their terminal taxa. If such distinctions are not reflected in terminology this cannot be attributed to limitations in the perceptual field, whether through the inaccessibility of information or lack of attentiveness. It is important to remember that the Mangaian animal terminology is not a nomenclature the prime aim of which is to label the isolates of some abstract classification. It is an integral part of the language used in everyday situations, not merely a response to the natural environment, but a response to the communities' requirements in speaking of it. As I have stressed before, Mangaians do not sit down to discuss animal systematics. They talk of animals in contexts which are directly relevant to their lives.

For the practical requirements upon the language, there is no reason why every inductive category seen as potentially nameable in its own right must be uniquely specified in the terminology. Indeed,

this would be obviously uneconomical in terms of memory storage. The Mangaians undoubtedly could develop an overt sub-categorisation of 'residual kokiri' and 'residual ti'iti'i'. If the function of terminology was simply that of labelling generally recognised categories, one would expect them to have done so. If the function relates to the role of animals in the Mangaians' world, the additions to terminology may be unnecessary, the residual categories forming practical units from the viewpoint of the

human activity into which the creatures enter. In effect, apart from a moderate degree of variation in visual features, what is predictable of one type of creature within the residual category is predictable of the others. I would tentatively suggest that 'unnamed types' are most common where moderate variation in the appearances of species is not accompanied by any marked variation in behaviour. Differences in habitat may also be important, though probably less so in the case of creatures not sought for food or other materials. I am certainly not trying to argue that the overt Manganian animal categorisation is purely pragmatic, reflecting only the 'differences that make a difference' from the point of view of activities. But, at the same time, I do believe that pragmatic influences have been of great importance in the development of the terminology.

As an indicator of the extent of the 'unnamed type' phenomenon among Manganian categories it is useful to consider the rate of polytypy among those categories listed in the main number sequence, those roughly equivalent to Berlin, Breedlove, and Raven's generics. In the parlance of bio-systematics, a taxon is polytypic if it is divided into two or more lesser taxa. If only the overt, 'named' subdivisions of the 90 categories of 'true mangaika', the marine fish, are considered, then approximately 19% are polytypic. If, however, one takes into

consideration 'unnamed types', covert, apparently inductive sub-divisions recognised and described by numerous informants, then the polytypy rate is nearly 33%. Similarly, the polytypy rate for marine invertebrates would increase from app. 10% to app. 28% if such covert distinctions are allowed for.

The problems of 'unnamed types' and 'residual taxa' are not unrelated to the question of the correspondence between folk and scientific classifications. A convincing measure of such correspondence for

Mangaian animal categories must await further zoological investigation of the Southern Cook Islands fauna. But, several points do emerge quite clearly from the present study. Considering those categories which would generally be regarded as 'terminal taxa' (the finest categories listed within my main or subsidiary number sequences) the incidence of over-differentiation, of a single natural species being divided between two or more folk categories, is low. Some instances occur in connection with the introduced domesticates. The distinction between puaka maori and puaka papa'a, between Polynesian type pig and European type pig, can be seen as an over-differentiation of Sus scrofa. However, it is founded in very obvious structural differences (see Ch.6-25.).

Among the indigenous species most cases of over-differentiation can be linked to observable within-species variation, sexual dimorphism, distinctive developmental stages, etc. I have suggested that the birds kau'a and patangaroa (Ch.6-14. and 15) may well be colour variants of Eudynamis taitensis, the Long-tailed Cuckoo. The crabs tuapuku and moka (Ch.5-40. and 41.) may be developmental stages, or distinct varieties, of one species. The sexual dimorphism of

the parrotfishes is a long-standing source of confusion for scientific classifiers. According to some Scarus lepidus, u'u o kura for Mangaian (Ch.6-44.1), should correctly be seen as the female of S. cyanognathus, a pakati in Mangaian terms. In view of the uncertainties among ichthyologists, over-differentiation of such species is hardly surprising. In fact, the Mangaian categorisation of parrotfish involves both over- and under-differentiation, with some division of the sexes of dimorphic species between 'pakati' and 'u'u' (Ch.4-44. and 45.), but without exhaustive division of species within those categories. A parallel situation can be found in the categorisation of ants. 'ro rere/ro pererau', 'flying ant' (Ch.7-

18.I), is a deductive subdivision of the general ant category 'ro'. As such, it does not refer to any complete species but only to the winged stage, while at the same time grouping together the flying stages of several species. Such simultaneous over- and under-differentiation is one of many problems when attempting to quantify these two types of non-correspondence to scientific taxa. However, on the basis of present identifications, it can be said that not more than 5% of Manganian overt 'terminal taxa' show over-differentiation. If the application of colour terms to the various domesticates was considered to constitute a distinct set of subsidiary taxa, this percentage would be somewhat higher.

Again considering overt 'terminal taxa', the rate of under-differentiation is clearly much higher, not less than 29% overall. For the purpose of this calculation, where no specimens representing a particular animal category were collected, and where there was no evidence to the contrary, a one to one correspondence of folk and scientific categories has been assumed. Therefore, more extensive

zoological investigations might well reveal a substantially higher rate of under-differentiation. Even on the basis of present figures some variation in the rate for different animal groups is obvious. For the 'true manu', larger land animals and birds, the rate is low, not less than 7% with a likely maximum of 15% (dependent upon the identification of rarer birds, such as the toroa, Ch.6-21., revealing more than the anticipated under-differentiation). On the other hand, for the terrestrial small life listed in Ch. 7, mainly the lesser arthropods, 'manu rikiriki' and 'manumanu' the rate is high, at not less than 47%. Clearly, a number of different factors are at work in creating such a marked variation.

Obviously, size, in itself, is important. To distinguish between small arthropod species often requires detailed observation of minute features,

the distinguishing characteristics of larger creatures being gross and visually striking by comparison. At the same time, small arthropod species are vastly more numerous than those of birds and larger terrestrial animals (almost certainly running into hundreds, as opposed to a probable 31). The number of closely related and visually similar species is correspondingly greater. I the clearest case of under-differentiation among birds involves two species of the same genus, the Greater and Lesser Frigate Birds, very similar in appearance, especially when they are almost inevitably seen in flight.

A further issue is that of attention or interest, which is not entirely dependent on the size of organisms concerned. That the Manganians can develop, and have developed, detailed knowledge of some very small creatures is indicated by their recognition of the life-stages of the human head louse. Lice become a focus of attention in the activity of de-lousing. However, it is unusual that an insect should

have such a specific set of actions directed towards it. The orientation towards the lesser arthropods is essentially passive, they impinge upon activities and may have to be avoided or repelled, but they are seldom central to the action in hand. The same cannot be said of the birds and mammals, many of which are specifically sought out or kept for food, feathers, etc. Activity centres upon such creatures. The category terms associated with them are involved in the planning and description of activity. Put crudely, shooting flying-foxes, feeding the pigs, or climbing for young tropic birds are 'events' in the day in a way that swatting mosquitoes and brushing off ants are not. Such 'events' usually involve a complex and specific set of human actions. Specificity of interaction is clearly part of 'cultural significance'.

It should be noted that the categorisations of different portions of the animal world differ not only in the rate but in the degree of under-differentiation. In the one certain instance involving birds we find a category comprising two species of the same genus. Much of the under-differentiation among fish is confined to species of a single family, though, as with the butterflyfish, ti'iti'i, these may be fairly numerous (six species recorded, with a probability of up to three times that number present). There are instances where fish categories embrace species of up to three closely related families. Descriptions indicate that the residual shark category 'mango' includes species of the families Carcharhinidae, Isuridae, and Alopiidae. Up to a dozen species could be involved. The pattern of under-differentiation for overt 'terminal taxa' of marine invertebrates is rather similar to that for fish taxa. However, among molluscs, where general shell shape is a major guide in establishing category membership, there are greater deviations from the scientific taxonomy. Thus, the category 'roaroa' (Ch.7-15.) includes at least five species of two different superfamilies (Ceritheacea and Conacea), all having elongated spiral shells. When one turns to the small terrestrial invertebrates, it is possible to find categories whose membership runs into dozens of species. The spider category 'tukutuku ra'o nui' (Ch.7-23.) appears to embrace all the locally present members of the order Araneae, a collection diverse in their size, colouring, behaviour, and habitats. Similarly, most Lepidoptera are lumped together as 'pepe' or 'pepepepe'. It is the case that the categories showing the most marked degree of under-differentiation (i.e. embracing the largest number of species of the most diverse zoological relationship) are to be found in those parts of the categorisation where the rate of under-differentiation is also high. Evidently, and unsurprisingly, common influences are at work.

In his later writings Berlin has assessed the correspondence of scientific species not with 'terminal taxa' but with his 'folk generics', which are supposedly psychologically basic (Berlin, Breedlove, and Raven, 1973). Considering the Manganian material in this manner, and taking the categories of my main number sequence as equivalent to Berlin's 'generics', one finds an overall rate of under-differentiation of app. 40%. The rate for all animal groups is higher than with the previous measure, though the variations in the rate conform to the same pattern, peaking at app. 70% for the terrestrial invertebrates listed in Ch. 7.

If the comparison of folk and scientific classification is intended to reflect the extent to which they represent common discriminatory responses to actual natural discontinuity, 'unnamed types' cannot reasonably be ignored. The Mangians know many of their overt 'terminal taxa' to be polytypic. To describe such categories as under-

differentiated with respect to scientific species is to say very little about the Manganian ability to discriminate between species. In many instances the knowledge of particular 'unnamed types' is sufficiently general for them to be viewed as covert terminal taxa. For example, every shell and shellfish collector can describe a number of different types of cowry, poreo (Ch.5-17.), and cone shell, popoto (Ch.5-21.). It is evident that some of these types are much more widely known than certain of the rarer creatures referred to 'by name'. If 'unnamed types' were taken into consideration in assessing measures of correspondence to scientific zoological species the observed rate and degree of under-differentiation would be much reduced. If the finest distinctions of a folk classification are to be identified by a criterion of consistent naming, it must be remembered that the terminology is shaped by the communicative requirements of the language using community, whereas scientific

terminology aims at the exhaustive labelling of classes discriminated within the principles of classification. For the biologist the terminology reflects all principled distinctions of type. In a less principled manner, the folk categoriser recognises types which the terminology does seek to reflect. The facts about the non-correspondence of overt folk 'terminal taxa' with scientific species are as much facts about the different kinds of language use as about differing discriminations among natural kinds.

Life-stages present other problems in comparing - classifications. Consider the life-stage series:

koperu → au'opu → a'ai tarairauti (see Ch.4-I.)

which connects three different species of fish, a scad, a bonito, and a tuna, in a developmental sequence. Clearly, those Mंगाians who

continue to believe that mackerel scad can develop into bonito do not fail to distinguish between the two species, but hold that the differences between them will be bridged in the course of growth and maturation. There is no disagreement with scientific classification about the basic units to be considered, but the differences between those units are theorised quite differently, in terms of distance within a developmental process as opposed to distance of common ancestry. The treatment of separate species as the life-stages of one organism may be regarded as one instance of under-differentiation resulting from different theoretical assumptions (understandable assumptions given the Mंगाians limited knowledge of the actual developmental stages of the larger oceanic fish).

Some other life-stage sequences could possibly be seen as a kind of over-differentiation, reflecting little more than small changes in size. The sequence:

raupipi → tiotio → tiotio nanue → nanue (Ch.4-62.)

relates to no substantial changes of form, but simply to the growth of a rudderfish (Kyphosus sp.) from 25 to 45cm. Obviously, this is not over-differentiation in the sense that a particular species is divided into distinct 'kinds'. Raupipi, tio and nanue are all examples of a single organism in terms of the folk conception, as they are in that of the scientific classifier. But, for a number of fish species, the distinction of development stages is much more detailed than that which might be predicted to arise from the observation of developmental changes of form. Size, in itself, assumes an importance far greater than that accorded to it from the scientists' viewpoint. It is a striking fact that while, in a number of instances, the same Manganian term is applied to

two or more similar but observably distinct species, other fish differing only in a few centimetres of growth are referred to by separate terms. I cannot satisfactorily account for the great detail of some life-stage classifications. However, differences of fish size clearly do have considerable importance for the fishermen, not only in the question of the quality of catch but in the techniques adopted. Different growth-stages may require different hooks, or even different baits. The pattern of behaviour might change, the larger fish being less likely to enter the lagoon, except on the highest tides. Different developmental stages may predominate at different periods of the year. Notably, it is the prime food fish, those most consistently sought after by fishermen, that have established life-stage sequences. However, there are some surprising exclusions from the list of fish with life-stage terminology. For instance, no full sequence was recorded for parrotfish, though these are much sought by spear-fishermen, and parrotfish developmental sequence terms have been gathered from the Tuamotus (Ottino and Plessis, 1972).

Measures of over- and under-differentiation concentrating on scientific species as the unit of comparison, though quite successful in indicating the variation in the refinement of the categorisation for different groups of animals, are, evidently, something of a blunt instrument when it comes to assessing the overall correspondence of folk and scientific categories. There are many folk categories that do not correspond to species, but correspond well with the locally present membership of a genus, family, etc. Hunn (1975; 1977:66—9) has developed more sophisticated correspondence measures in which folk categories are compared to taxa of different levels within a scientific taxonomy reduced to consider only those classes within a folk domain and to reflect the faunal complex of the environment under consideration. A folk category with the same membership as any class within the reduced taxonomy is considered to show zero dissimilarity. Where a folk category is divided between several scientific taxa, the degree of dissimilarity is given by the number of inter-node links between the lowest level of partitioning taxon and the 'lowest common denominator', the lowest node of the taxonomy at which the paths from the nodes of all the partitioning taxa meet. The most refined measure proposed by Hunn is a normalised weighted coefficient of similarity, which aims to indicate the total dissimilarity realised among the categories of a folk domain (determined by inclusion within a 'unique beginner') as a proportion of the total possible dissimilarity. (For details of calculation methods see Hunn, 1977:68-9.) Calculated for the 'fish' category 'true mangaika' on present data the normalised weighted coefficient of dissimilarity is app. 0.043, that is, less than 5% of the possible dissimilarity is realised. As with previous calculations, in cases of doubt I have favoured the interpretation that folk category and scientific taxon do correspond. Further zoological investigation, therefore, might lead to a slightly higher coefficient being

calculated. However, anything in excess of 0.06 or 0.07 is unlikely. This is sufficiently low to suggest that the Mangaian categories and the scientific classification do represent similar responses to natural discontinuities. But, of course, as we have seen with life-stages, extensional equivalence does not necessarily imply intensional equivalence.

It is, perhaps, worth noting, despite the element of subjective judgement involved, that most Mangaian animal categories are visually coherent. This point may be obscured when speaking solely in terms of correspondence to scientific taxa. The Mangaian category 'mangaika' corresponds in extension neither to a single zoological taxon, nor, precisely, to any English folk category. Besides fish, it includes some mammals, the cetaceans. Nonetheless, as folk classifiers, we acknowledge that the cetaceans are 'fish-like'. If the Mangaian assert that the rock cods (Serranidae) and the handfishes (Cirrhitidae) form a single (covert) grouping, the reasons are not immediately apparent from their zoological relationships. But, there is no doubt that some handfishes and smaller rock cods are surprisingly similar in appearance. In the few instances when a category seems to lack visual coherence, it is not difficult to identify deductive principles of association. Most of these deductive categories focus upon some aspect of behaviour. Thus, 'kutu' (Ch.7-17.) includes both lice and fleas. Parasitic behaviour is, here, more important than morphological differences. Again, behavioural similarities are the dominant consideration with the 'octopus-eating fish' category 'pakevakeva' (Ch.4-80.). Taking the broad view, to a non-zoologist such as myself, Mangaian animal categories are remarkably unsurprising and immediately comprehensible. I found that I could learn and use these categories without any strong sense of conflict with my own culturally-mediated perception of the animal world. This, for me, is as much of an

argument for a common 'natural' base for classification as any measure of taxonomic correspondence.

In the terms used by Berlin, Breedlove and Raven (1966; also see Ch.1) is Manganian animal classification to be seen as 'special', based upon limited numbers of attributes relevant to specific uses, or 'general', based upon many attributes and not tailored to specific tasks? To a considerable degree, this distinction can be equated with the deductive/inductive distinction of Hunn. I am in no doubt that the great bulk of Manganian animal categories, those I have described as visually coherent, are inductively based. They could not be specified by any small number of attributes (or if a short list of attributes is given, these attributes are, themselves, complex). The classification must, then, be seen as predominantly 'general' or logically natural, as Bulmer (1970) has predicted for all folk classifications. This is not to say that there are no clear instances of 'special purpose' classification. The case of the pakevakeva just mentioned, is a suitable example of this. That a category of octopus-eating fish should be distinguished seems to relate to the interests of octopus fishermen, who could locate their prey by the presence of the pakevakeva. There is a greater tendency towards the intrusion of deductive principles among the most inclusive or most general of folk categories - 'manu rere', 'manu rikiriki' and 'mangaika' (when excluding fresh water fish). In defining broader resemblances in terms of limited sets of criteria, the deviations from zoological taxonomy become more marked. Hunn (1977:59) has commented:

The preference for attribute reduction....as opposed to utilising configurational recoding, as is typical of inductive taxa, may be a function of the extreme heterogeneity of life-form taxa and unique beginners and be characteristic of such broadly inclusive taxa.

When Bulmer (1967:169) notes the cultural influences upon the selection of significant attributes in the formation of higher level Kalam animal taxa, leading to greater deviation from the zoologists' taxonomy, he is speaking of the same contrast in the constitution of categories.

Even if inductive categories predominate and the Manganian classification can be described as 'general purpose', in terms of the logic of category formation, this does not necessarily mean that the categories expressed in the terminology reflect some kind of pure observation of nature, unaffected by the contexts in which animals are encountered and spoken of. As I have suggested before, even to speak of 'a Manganian classification of animals' may, to some degree, be misleading, if it is allowed to conjure up the image of a unified, conscious systematics. The various component categories find expression in many different contexts and are related to different areas of experience. The nature of man-animal interactions does appear to affect the fineness with which inductive distinctions are drawn, as is indicated in the pattern of over- and under-differentiation. Berlin, Breedlove, and Raven (1966) related different rates of differentiation to variations in the 'cultural significance' of natural species (see Ch.1). Convincing scales of 'cultural significance' have, understandably, remained somewhat elusive. Even the simpler notion of 'practical utility' is difficult to define and quantify. I suspect that the factors influencing the lexical realisation of an inductive category of a particular degree of inclusiveness will be better understood only when we successfully break with the vision of 'a classification' and begin to learn in greater detail how category terms are actually used. In what speaking contexts are the distinctions expressed in the terminology made relevant? Does this relevance relate back to actual man-animal interactions through the way in which the particular category enters into the specification of events? Rosch (Rosch and Lloyd, 1978:43) has recently reported

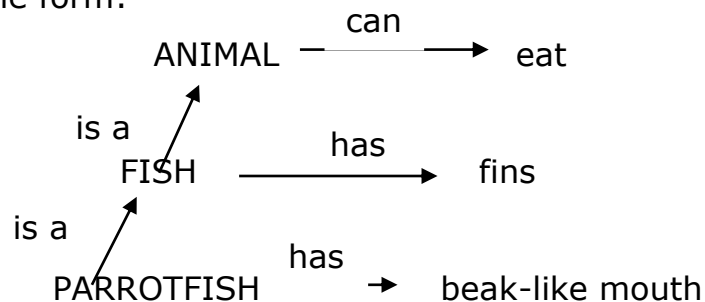
preliminary investigations into the role of objects as 'props for events', assessing the way in which terms for categories of different orders of generality fit into typical descriptions of activity. But, this is an area of which we still know little.

Two basic orientations can be detected in the anthropological study of animal categorisations. The first of these has an ontological bias. It is concerned with the derivation of categories from the experience of the world and the grouping of known objects (animals) implied by a particular categorisation. The second orientation concerns category storage, semantic memory. In the more linguistics-inclined forms of this orientation, classificatory relationships may be identified with meaning relations within a lexico-semantic field. The two approaches can co-exist in varying balances. Hunn inclines heavily towards the first orientation. He derives a pseudo-taxonomic form for folk classification from assumptions concerning category formation. He criticises the axiomatic taxonomic model for its failure to account for the generation of taxa or the attribution of organisms to a given taxon (1976:510). However, Randall's (1976) criticisms of strict taxonomic models draw upon the second orientation. He attempts to show that the direct storage of large taxonomic trees in memory is unlikely, and proposes alternative foundations for classificatory behaviour (or, specifically, for statements of category relations).

Randall (1976:543) suggests that 'descriptions of human belief are usually psychologically inaccurate because they fail to distinguish mentally stored old knowledge from new knowledge spontaneously produced by reasoning'. He argues against the direct storage of taxonomic relations on many levels of structure, suggesting that judgements of the form 'X is a Y' may be derived by reasoning from information stored in another form.

The distinction that he draws is much the same as that made in cognitive psychology between pre-storage models and computation models of semantic memory (Smith, 1978).

In pre-storage models, category relations may be given directly. In computation models they are always worked out on the basis of other stored information, attributes. In fact, it is not difficult to see the typical taxonomic model of ethnoscience in terms of a basic type of pre-storage semantic memory model, the hierarchical network (e.g. see Collins and Quillian, 1972). This presents word-concepts as nodes within a network of labelled relations. Word-concept meaning is derived from the total set of relations connecting with a node. A fragment of such a network might take the form:

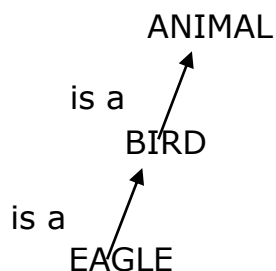


each arrow representing a particular relation. Properties are linked directly to the highest node to which they are applicable. The 'is a' relation is that of class membership, the taxonomic relation of inclusion. To establish that PARROTFISH is an ANIMAL is assumed to require the tracing back of the 'is a' relation through the node FISH. This is identical with the transitive logic which Randall considers standard taxonomic models of category relations to imply:

...taxonomic descriptions are implicitly generative because they produce appropriate indirect precedence statements not already

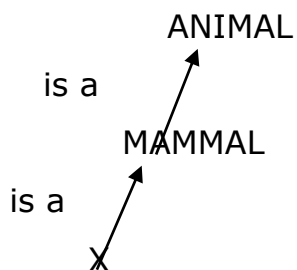
stored in the memory....Presumably, as Kay implies (1971), direct precedence relations produce indirect ones by the application of transitive logic: "If a black oak is a kind of oak, and an oak is a kind of tree, then a black oak must be a kind of tree. (Randall, 1976:544)

In his critique of taxonomic storage models, Randall focuses upon instances of non-transitivity in the relations between folk categories of different orders of inclusiveness (e.g. 'A scrub oak is a kind of oak' and 'an oak is a kind of tree', but 'a scrub oak is not a tree; it is a bush'). Much of the criticism of hierarchical network models in cognitive psychology revolve around the times taken by subjects in verifying various statements, particularly those of the form 'X is a Y' (see Rips, Shoben, and Smith, 1973; Smith, 1978). In connection with the hierarchical network model, it was proposed that the verification time for a particular statement would reflect the number of network links passed through in establishing the category/category or category/property relation involved. Some findings appeared, at first sight, to confirm such an hypothesis. For instance, a group of American subjects were shown to confirm 'An eagle is a bird' more rapidly than 'An eagle is an animal' (Rips, Shoben, and Smith, 1973). This could be predicted from the network fragment:



EAGLE and BIRD being distanced by a single link, EAGLE and ANIMAL by two links. However, the same researchers also showed that, for most of their experimental statements involving types of mammal, 'X is an animal'

was confirmed faster than 'X is a mammal'. This is clearly not predictable from:



which is ordered simply upon the basis of class inclusion. Presumably, the strength of the associative bond between word-concepts also has to be taken into consideration.

Similar problems arise with typicality effects. Generally, 'X is a Y' will be verified faster when subjects consider X to be a typical Y. Thus, with her American subjects, Rosch has shown that 'A robin is a bird' and 'A sparrow is a bird' are verified more rapidly than 'A duck is a bird' and 'A chicken is a bird', and that robins and sparrows are more typically bird-like than ducks and chickens in the judgement of those subjects. Rosch (1973; 1975; Rosch and Mervis, 1975; in Rosch and Lloyd, 1978) has steadily been building up evidence for the importance of prototypes in the internal structure of the cognitive representations of semantic categories. She argues that the effect of differing degrees of category prototypicality can be seen in a variety of psychologically dependent variables. These include speed of processing, as revealed by the varying reaction times in verification experiments; speed in the learning of artificial categories, prototypes being learned faster; the likely order of output in listing tasks, prototypical items tending to appear first; and the priming effect of category terms given as advance information in matching tasks. The effects of prototypicality are also apparent in the logic of certain areas of natural language.

Without employing experimental techniques, the anthropologist is most likely to observe the influence of prototypicality in informants' listing behaviour and in certain forms of language, such as in the use of 'hedge' terms ('X is almost Y', 'X is very nearly Y', etc.) or in the asymmetry of statements of similarity. I have remarked upon the asymmetry of Mangaian similarity statements in the discussion of the structure of covert fish groupings at the conclusion of Ch.4. There, I explained that when speaking of tunas, it would be perfectly normal to say that the varu was like the a'ai, but one would not expect to hear the statement reversed. I explained this effect in terms of relative familiarity. It is quite likely that a person will have seen an a'ai and not seen a varu, the reverse is improbable, and the reversed comparison would not be productive. It could be argued that the a'ai can be considered prototypical members of the covert tuna grouping, and that the asymmetry of comparisons should be seen as a prototypicality effect. The present limited understanding of the development of prototypicality judgements does not allow for any clear statement on the relative importance of, and interrelations of, factors such as the maximisation of similarity, the relative familiarity of organisms, and the frequencies of occurrence or co-occurrence of category terms.

Attempts to present alternative formulations which overcome some of the problems of simple set-theoretic models have been numerous. Kay (1975) has, himself, developed an alternative to his 1971 taxonomic model. This second model abandons the set-theoretic basis and finds itself in model-theoretic semantics. The taxonomic structure is to be seen as a network of interrelated propositional functions. Propositions, functions from the set of all possible worlds onto the set TRUE/FALSE, are interpreted as the intensions of sentences. Propositional functions are functions from individuals into propositions and are interpreted as the

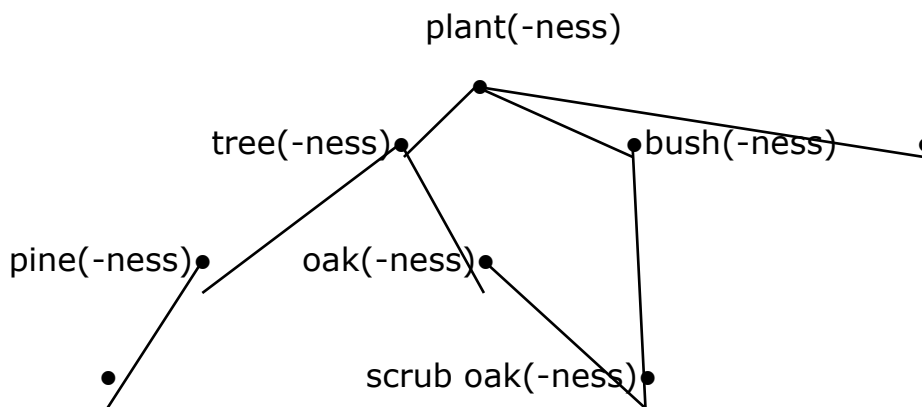
intensions of predicates. In the graph-theoretic representation, which Kay retains, the nodes now represent propositional functions and the connecting edges the entailment relations holding between them.

Informally, taxa can be interpreted as 'the property of bird-ness', 'the property of fish-ness', 'the property of wrasse-ness', etc., etc. We no longer speak of the taxon 'wrasse' as the subset of (being included in) the taxon 'fish', but say rather that 'for all x, x is a wrasse entails x is a fish'.

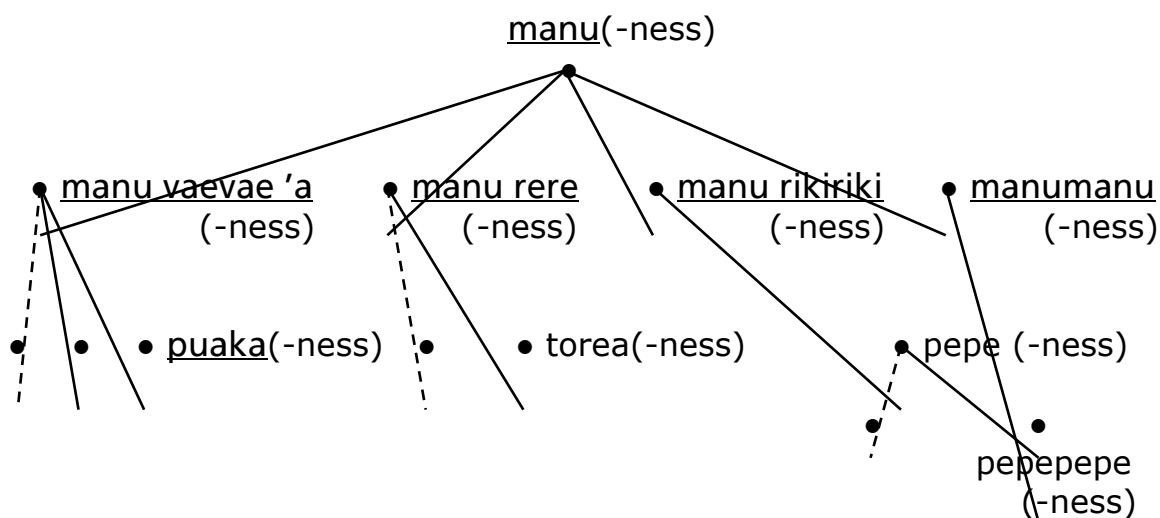
Within the new framework, Kay defines a relation analogous to the immediate precedence of sets, an analogue for the contrast set of previous models, the relation of direct contrast, and the 'unique beginner'. But, the problematic condition of perfect partition is abandoned. The revised logical formulation contents itself with specifying that while no individual can satisfy two or more taxa of the same contrast set, it is possible for one of more individuals to satisfy a given taxon without satisfying any taxon it immediately precedes. This allows for residual taxa or 'unnamed types'. So, considering Manganian triggerfish types in relation to this model, 'x is a kokiri pa'a', 'x is a kokiri moana' and 'x is a kokiri 'uku tea' all immediately entail 'x is a kokiri'. But, the (realised) possibility that there are other fish recognised as kokiri without being kokiri pa'a, kokiri moana or kokiri 'uku tea, or satisfying any other labelled taxon immediately preceded by 'kokiri', is allowed for in a way that the set-theoretic model did not.

Kay also seeks to overcome some of the problems relating to non-transitivity in classifications by introducing the predicate modifier 'typical' into his logical formula for immediate precedence, such that only if x is typical of its taxon will it necessarily satisfy the immediately preceding taxon. So, for Randall's example, 'scrub oak is an oak', 'oak is a tree', but 'scrub oak is not a typical oak'; therefore 'scrub oak is not necessarily a tree'. We are free to conclude 'scrub oak is a bush'. Kay's revision, in

fact, allows for cycles or loops in the taxonomic tree structure in some rare cases, as:



One could reformulate the difficult to interpret relationship between the Manganian 'butterfly and moth' category 'pepe' and the 'small insect' category 'manumanu' by stating that it is only the untypical pepe (the smaller Lepidoptera, sometimes referred to as 'pepepepe') that are manumanu. This suggests a structure such as:



Though this does appear rather more satisfactory than previous attempts to express the relations of these categories in taxonomic form, there are still problems. For example, 'x is a manumanu' need not necessarily be seen as entailing 'x is a manu'. There are situations of use in which 'manu' and 'manumanu' appear to be in contrast. Conversely, usage implies that 'manu rikiriki' is not always in contrast with

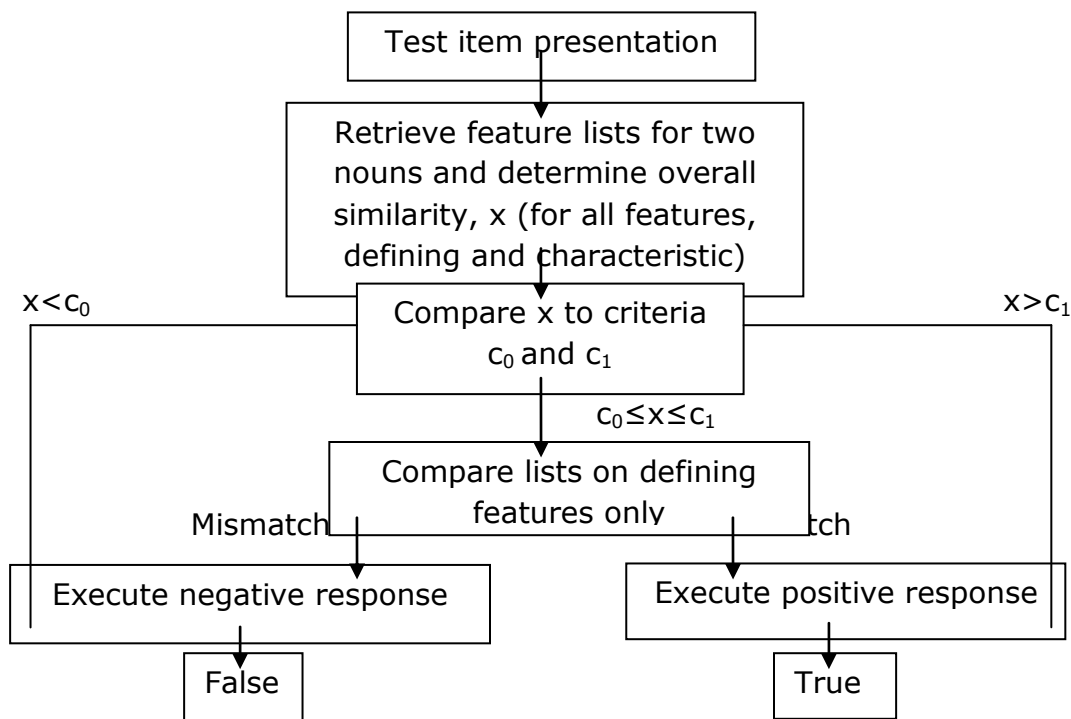
'manumanu'. However, if it is assumed that 'x is a manumanu entails 'x is a manu rikiriki' (as might be expected by analogy with "x is a very small animal' entails 'x is a small animal'") on present construction 'manumanu' would appear to be in the same contrast set as 'pepe', not an acceptable outcome. Perhaps I am allowing myself to become somewhat bemused by variations of usage. But, suffice it to say that all my attempts to represent these patterns of relations within Kay's second model produced very complex webs with 'manu', 'manu rikiriki' and 'manumanu', suitably subscripted, unavoidably introduced at more than one taxonomic level. Nothing that I could produce seemed to me to adequately reflect the simplicity, yet subtlety, of the category relations as suggested by the application of the terminology. Essentially, manu, manu rikiriki and manumanu are size divisions within a broad category which in some contexts, particularly when referring to large and varied collections of creatures, is also spoken of as 'manu'. The animals of the manu size division may be considered the typical members of this broad category, the manu rikiriki and manumanu being peripheral. Questions of the type 'Is this a manu?' appeared to focus the attention of informants more upon the typical menu than the broader category, so leading to creatures accepted as manu rikiriki or manumanu being rejected as manu in this context. The category boundaries are fuzzy. Even given predicate modifiers such as 'typical' it is not easy to present such categories and their relations in terms of strict entailments.

Clearly there are other general limitations on Kay's model-theoretic taxonomy. It is not really intended to satisfy the requirements of the cognitive psychologists' semantic memory storage models. Though the introduction of 'typical' as modifier is a successful device in indicating some restrictions upon entailment, we learn little or nothing of the role of typicality in category organisation, or of the

subtleties of graded typicality. There is certainly no explanation of verification time findings within this framework; typicality remains unanalysed. But, perhaps, that level of explanation is not essential to the anthropologist or linguist.

Among developments in the semantic memory models of cognitive psychologists, we find both the computation type deriving category relations from category attributes and the pre-storage type with many category relations given. An example of the former is the 'feature comparison' model of Smith, Shoben, and Rips (1974). This goes beyond the simple set-theoretic attribute-matching models by introducing the notion of a continuum of features ranging from the 'characteristic' to the 'defining' (rather than a set of attributes all necessary and sufficient for category membership). The act of confirming a statement of category relationship of the type 'A is a B' might, they propose, involve more than one stage of feature comparison. They suggest the possibility of comparisons first on all features and then, in some circumstances, on defining features only.

The proposed processing sequence is:



In other words, categories which fall between certain criterial levels of similarity on the comparison of all features will then be compared on the basis of a more restricted set of more essential features before a response is executed. Above or below these levels, where category A is a very good example of category B, or clearly not an example of category B, only a single comparison of overall similarity will be necessary. The effects of typicality on statement verification times can, then, be seen as reflecting the reduction in processing steps.

Since the feature lists of each pair of nouns/categories to be considered are compared directly in establishing the 'is a' relation, there is no requirement of transitivity in this model. However, relations would be revealed as transitive where the defining features of B were a subset of the features of A. So, the defining features of 'tree' would be a subset of all the features of 'oak'; but not of all the features of 'scrub oak'. The defining features of 'oak' would be a subset of all features of 'scrub oak'.

Presumably, the relations between 'pepe' and 'manumanu' could be accounted for if it is presumed that a size range is in some way specified among the characteristic features of 'pepe' which overlaps in part with the size range specified among the defining features of 'manumanu'. But, as ever, there are complications. It could be said that the smaller pepe are untypical of the 'pepe' category as a whole, and that this untypicality could best be seen as a failure to fall within the characteristic size limits of 'pepe'. If the characteristic size feature of 'pepe' is restricted in such a way as to indicate typical and untypical cases, there would be no overlap with the defining size feature of 'manumanu'. The relation between 'manumanu' and the 'some pepe' which are manumanu would have to be based upon a comparison involving some separate sub-category representation - i.e. a separate feature list relating to 'some pepe'.

There is a similarity, in the contrast between category membership established by the comparison of all features and that established by the comparison of defining features, to Hunn's distinction between the inductive and deductive processes in category formation, which has been shown to relate to the transitivity problem. But, in Smith, Shoben, and Rips the contrast is not the basis for a distinction of category types.

Whatever their advantages in modelling mental processes, the theoretical and practical problems in identifying attributes or features undoubtedly limit the usefulness to anthropologists of models in which the feature list is the basis for the semantic representation of a word-concept. The criticisms of componential analysis, which attempts to identify just such features or sense-components, are now very familiar. Lyons (1969,470-80; 1977;317-335) has brought together many of the more difficult questions relating to the application of these techniques of analysis - 'How is it possible to choose between different and equally plausible analyses?', 'Since there has been no demonstration of the

psychological validity of sense-components, is the previous question answerable?', 'Is it possible to establish the universality of components of meaning?', 'Can a supposed sense- component such as HUMAN really be distinguished from (defined independently of) the corresponding English lexeme, 'human', the sense of which it supposedly underlies?', etc. If the identification of features by analysis is no ready answer, eliciting attributes from informants is an almost equally uncertain procedure. There is, inevitably, an element of folk explanatory construction involved in such attribute listings, and sometimes a degree of category justification rather than category description. The exhaustive characterisation of any single category, let alone a large set of categories, in terms of a set of features is well beyond the scope of any technique yet imagined (putting aside the philosophical questions of whether such exhaustive analysis is even possible). But, of course, some reference to features or features or attributes is unavoidable. Whatever their psychological role in the constitution of categories, they are an inevitable part of category description.

Some adaptations of network models have been devised which are also capable of dealing with category verification time findings. The 'marker search' model (Glass and. Holyoak, 1973), for instance, relates them to different patterns of search through alternative network links, the sequence in which links are explored relating to the co-occurrence frequencies of word-concepts. Collins and Loftus (1973) have also developed upon the basic hierarchical network model. They suggest that many of the criticisms of the earlier Collins and Quillian network model, of the kind voiced a few pages ago, were based upon misinterpretations. They stress the point that all network links need not be considered equal. If the variation in the strength of inter-category relations is shown by the length of edges in the graph representing the category network (so

reflecting typicality or variance in co-occurrence frequencies, and implying variation in search times), we can see the introduction of a spatial metaphor into the representation of semantic relations.

Notions of meaning-spaces and conceptual spaces are familiar from semantic field theory. Recently interest has been shown in the representation of category relationships in terms of relations within what might be called 'similarity space'. Hutchinson and Lockhead (1977) have proposed a model in which:

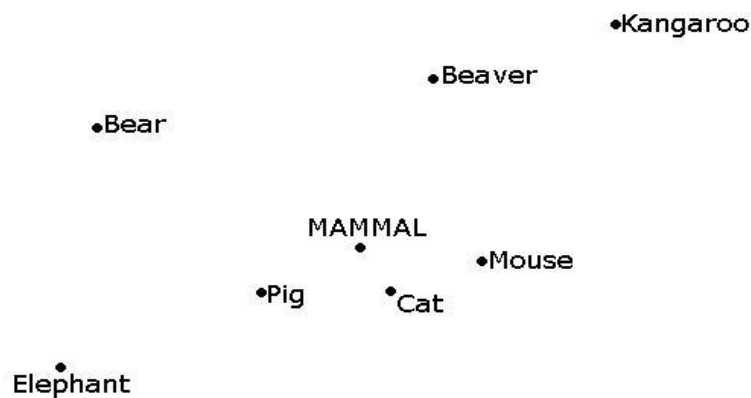
The relations between objects in semantic memory are described by mapping those objects onto a metric space according to the assumption that the space is a monotonically decreasing function of the similarity between corresponding objects.

(Hutchinson and Lockhead, 1977:664)

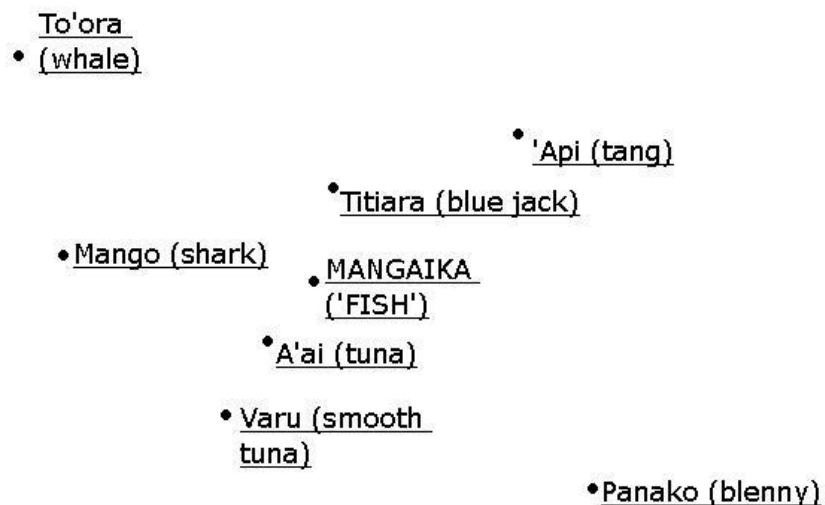
One obvious advantage of this type of similarity-distance model is that one is not committed to a particular theory of the mental representation of categories. The similarity judgements involved could equally well be based upon comparison of prototypic images, matching of feature lists, or comparison of virtually any other form of representation. However, there are also evident difficulties in providing convincing methods of quantifying similarity judgements, and in dealing with the assumptions concerning context which underlie particular judgements of similarity.

Setting aside for the moment the difficulty of actually producing a detailed similarity-distance model of a particular categorisation, the similarity space conception does have considerable value as an heuristic device. It is especially satisfying in relation to covert categories, which emerge as clusters of points within the similarity space comparable to

those clusters which are associated with category terms. Where higher order categories are mapped as points onto such a space (as they would be in procedures such as Hutchinson and Lockhead's) the points representing members of the particular categories will cluster around them at distances which might be interpreted as reflecting relative typicality. So, for an Englishman, one might expect something like:



or, for a Manganian:



Of course, Hunn's 'perceptual' model is based upon similarity-distance. But, ultimately, the similarity of his 'percepts' is to be seen as an objective measure founded in the properties of the world. Hunn's hopes for the theoretically neutral quantification of similarity seem to echo the aspirations of the earlier pheneticist (as opposed to phylogeneticist) numerical taxonomists. The ideal phenetic classification was to be a summary of observed facts with no reference to inferences drawn a posteriori from the patterns revealed (Colless, 1967). Hunn's formal model works with 'the fiction that the classifier sees all (the) percepts simultaneously rather than over time' (Hunn, 1976:522). But, presumably, to give some sort of psychological reality to the model, one might assume that what are actually assessed for similarity are some kind of primitive representations in memory which echo faithfully, with minimal impact of theoretical considerations, the properties of real-world objects. Similarity makes an appealing bridge from the world, through perception, into cognition. Some kind of innate similarity spacing would seem to be an evolutionary necessity, permitting a consistency of response to the environment. As Quine (1969:126) has pointed out in this respect, 'creatures inveterately wrong in their inductions have a pathetic but praiseworthy tendency to die before reproducing their kind'. Quine argues for a basic, innate similarity spacing underlying and coexisting with other notions of kind. He writes:

Between an innate similarity notion of spacing qualities and a scientifically sophisticated one, there are all gradations.... Our experiences from earliest infancy are bound to have overlaid our innate spacing of qualities by modifying and supplementing our grouping habits little by little, inclining us more said more to an appreciation of theoretical kinds.... Moreover, the later phases do not wholly supersede the earlier. We retain different similarity standards, different systems of kinds, for use in different

contexts..... Something like our innate quality space continues to function alongside the more sophisticated groupings that have been found by scientific experience to facilitate induction.
(Quine, 1969:129)

Hunn's model can be read as describing such a primitive quality space, one that is essential to our notions of generalised similarity as expressed in semantic memory.

However, as Quine indicates, different contexts activate different canons of similarity. Within ethnozoology, Ellen (1975) has demonstrated the need to consider the role of context in determining different assessments of category relatedness. Considerations of context have also been used by some cognitive psychologists to argue against any static memory model, including spatial models. For instance, Bransford, McCarrell, Pranks and Nitsch, who describe themselves as 'unexplaining memory', write:

Consider the assumption that certain ideas are stored at certain distances from one another in 'semantic memory'. Such conceptualizations convey the impression of some static form of storage invariably accessed when making decisions. For example, the distance notion might capture the notion that given a triad like shirt-shoe-rock, shirt and shoe seem "closer together" than rock and shoe. But assume that one is looking for objects that could be used to pound a nail into a wall. Now shoe and rock seem "closer together" than shoe and shirt. In short, static conceptions of semantic memory fail to orient one towards the flexibility of understood relationships as a function of the context or setting in which events occur.
(Bransford, McCarrell, Pranks, and Nitsch, 1977:461)

Similar objections to hierarchically structured schemes can be found in the work of Anderson and Ortony (1975), and a comparable emphasis on context and the role of 'knowledge of the world' in acts of semantic interpretation is seen in the work of Barclay, Bransford, Franks, McCarrell and Nitsch (1974) and of Jenkins (1977). These authors prefer a more dynamic conception of memory, not speaking in terms of contacts with stored traces, but in terms of memory 'setting the stage', recreating an orientation that allows for the appreciation of parallels with past experience. Weimer (1977:299), working along similar lines, describes the brain as acting as a neural hologram, recreating perspectives to make information meaningful. But this escalation in the search for ever more satisfactory accounts of psychological processes has led even the psychologist Smith (1978) to talk of a 'sufficiency vs. transparency' trade-off in models of semantic memory. For some purposes a simple road map is more useful than one laden with landscape detail.

Ultimately, what models of categorisation are chosen by anthropologists must depend upon what they expect of them. Simple taxonomic presentation still has much to offer in the way of clarity and ease of construction, though we are now aware of its many limitations. More sophisticated taxonomic models may overcome some of these limitations, but sacrifice a proportion of their clarity in trying to deal with such difficulties as intransitivity or the fuzziness of category boundaries. Attribute based models might lead to a more convincing account of some underlying mental processes. However, the problems of identifying attributes or features are numerous. Similarity-space models are able to suggest covert organisation and may be applied in attempting to explain the processes of category formation. They show greater flexibility than the taxonomic form, but, relying on the quantification of similarity, they are not readily constructed in detail. If still greater 'psychological reality' is

sought for, we may have to bend to the arguments of those who would reject all static models of category storage, by which time our original descriptive aims may well be lost from sight.

I found it difficult to give a satisfying account of Manganian animal categories in taxonomic form. I have not attempted to produce comprehensive taxonomic trees in this thesis. On the other hand, much of the Manganian organisation of the animal world only became apparent to me through informants' statements regarding the similarity of organisms or of categories of organisms, tempting me towards a similarity based model. In the schematic representation of the summaries of categories following Chs.4-7, I have used a notation which attempts to reflect similarity judgements involving restricted groups of animals, whilst describing broader category relationships within the main text. The limited schematic representation of similarity that I have adopted is essentially a descriptive device which at least does no violence to my understanding of Manganian conceptions.

We cannot look to cognitive psychology (or, for that matter, to linguistics) to be given the one powerful new model for the anthropological study of classification. Those working in these fields are also in search. It is a very active area of inquiry. Perhaps the best we can hope for at the moment is to be aware of some of the alternatives, to make use of them where appropriate, and to avoid allowing an overly strong commitment to any one model to lead to the creation of pseudo-problems, where data fail to accord with its logic.

Issues of Symbolism - Mangaian 'Totemism'

The last two chapters of this thesis have been concerned with my second area of inquiry - the role of animals in Mangaian myth and spirit belief. From the evidence presented, it is clear that traditional Mangaian beliefs conform to the Polynesian 'totemic' tradition, though in some ways the label 'totemism' remains misleading. In the pre-Christian era, a connection was recognised between certain animal species and certain social groups (or, at least, particular tribes or sub-tribes conceived of certain animals as having a special role to play in relation to them). But the connection was indirect. The animal was the material form adopted, for a certain period of time, by the tribal atua, the god or gods to whom members of the tribe were dedicated. It seems that some spirit beings not related to any social group were also considered capable of animal manifestation (e.g. spirits connected with certain areas of the island, see Ch.10). With the rise of Christianity, the old atua were abandoned, but the connection between animals and the spirit world persisted. It can still be discovered today in the lingering link between animals and human spirits, ghosts. Firth's classic view of Polynesian 'totemism' as an aspect of spirit beliefs (Firth, 1930-1; see Ch.1) is clearly reinforced by the Mangaian data.

If anything approaching a 'totemic system' is to be located in the Mangaian material, it must be sought in the set of entities associated with the tribal deities of the pre-mission period. The known material forms ascribed to these gods have been listed in Table 2. I have already intimated that to extract from this collection of animals, plants, artefacts, and heavenly bodies any very systematic set of

relations seems to require an analytical dedication and inventiveness beyond that of Lévi-Strauss. I see no reason to assume that this lack of coherence is simply the product of our limited knowledge of traditional Manganian religion. If the historical traditions of various tribal settlements are to be credited (and evidence of archaeology and of art styles does, at least, suggest the possibility of contact with the Austral Is. as well as with the other Southern Cooks) then a degree of historical contingency in the pantheon of tribal gods, and in their material representations, might be expected. As already noted, there appears, at first sight, to be a parallel with Worsley's (1967:154) characterisation of the Groote Eylandt totemic set as based upon associations that are 'random, fortuitous, or haphazard'.

But, perhaps, it is not legitimate to look upon all the listed material forms of the gods as equivalent, as forming a single set. In any case, one form of manifestation, that involving the possession of priests or ritual experts, has already been set to one side. Manifest in effigy or in the elaborately carved 'god adzes' the spirit being was the passive focus for ritual action. In animal form the spirit was active, indeed purposive. (Too little is known of the manifestations as plant or heavenly body to be certain how these were regarded.) The idea that Manganian 'totemic animals' were, essentially, embodiments of active spirits and, as such, part of a wider set including non-totemic spirit animals, is vital to an understanding of their selection. Here I seem to be echoing Firth's explanation of the prevalence of animals in Polynesian 'totemism' in terms of their mobility and 'other striking characteristics in the matter of shape, colour, ferocity, or peculiar cries' which make them particularly suitable to express the actions or intentions of supernatural beings (see Ch.1).

Mangaian spirits are not especially mysterious beings. Whether gods or ghosts, they behave very much like human beings with extra-human powers. They come to give messages. They punish breaches of rules which they and living men recognise. Spirit actions and purposes are a reflection of human actions and purposes. Anthropomorphism in the interpretation of animal behaviour may well be a cultural universal. Certainly, attempts to establish a truly 'scientific' ethology have been complicated by this pervasive tendency in our own culture. It is equally evident in Mangaia. Animals may be said to be 'clever', 'stupid', 'thieving', 'afraid', 'in search of a "woman"', and so on, in the same terms that are applied to people. Parallels between humans and plants, or inanimate objects, are, in my limited experience of the language, much more restricted. Animals are interpreted as sharing with spirits and men the capacity for purposive action. Mangaian myth makes it clear that the spirit animals are, in some degree comparable to human mediums, the priesthood being seen as clarifying and expanding upon the messages which had been passed through birds. If the oracular pronouncements of the priesthood were an extension of normal human communicative behaviour, the activities of the spirit-omen animals were and are an extension of normal animal behaviour.

But, let us consider once more the factors that might influence the selection of particular creatures for 'totemic' or spirit-omen roles. It has become a tradition to begin the discussion of this topic by reference to the proposal of Radcliffe-Brown (1952) that ritual attitudes would be adopted towards things or events directly affecting the material and spiritual well being of a society. I have already

argued (in Ch. 9) that spirit-omen animals are not, in general, of great utilitarian importance. Their material contribution to the well-being of

Mangaian society is minimal. Neither the most plentiful, nor the most prestigious, food animals are to be found in the 'totemic' listings. With the possible exception of the unidentified 'sprats' of Tane i te utu, eels are the only significant food source amongst them. Birds highly valued for their feathers are also notably absent. However, it must be said that the only plant species known to have been associated with a divinity, the 'tree nettle', *Pipterus velutinus*, was of major importance as a source of plant fibre for the manufacture of fishing lines and other goods. But, no division of the food crops between atua comparable to that of Tikopia, has been recorded for Mangaia. Closest to this is the mythical division of all foods between Rongo and Tangaroa, the eldest sons of Vatea and Papa (see Figure 4). Yet, since myth also relates how Tangaroa left Mangaia (Gill, 1876a:12), and since no cult of Tangaroa seems to have existed on the island, the significance of this division is obscure.

In Tikopia totemism' Pirth detects...

..two distinct types of the institution - the positive,
relating to plant food-stuffs, with emphasis on fertility;
the negative, relating to animals, with emphasis on unsuitability for
food.

(Firth, 1930-1:301)

There is too little information on traditional Mangaian agricultural ritual to either confirm or deny the existence of the first, positive type of 'totemism' on that island. Looking to the second type, there obviously was a high correlation on Mangaia between spirit-animal status and non-food status. The lizards and small arthropods continue to be considered non-edible. The principle 'totemic' birds are now mostly considered too small to be worth eating, but at least one of them, and probably all of them, formerly fell under a food taboo for the tribe with whose atua they

were associated. There are doubts about the eating of sharks, and the eels, now widely eaten, are known to have once been the objects of a strict food taboo for women. A generally negative orientation does seem probable.

Firth's 1970 article also focuses upon practical interest as a factor in 'totemic' selection but looks particularly to a stronger negative element, the capacity to harm man. In it, he proposes that animals may be selected for their special roles as a result of being seen as predators on, or competitors with, man; they represent dangers. In Ch. 9, I suggested that, though shark, centipede, and possibly eels, could be said to pose some physical threat to human beings, other spirit-animal species could not be considered particularly harmful to men or their activities.

Admittedly, the grasshopper (uru'apuka) is seen as potentially dangerous, in that it is believed to convey sickness. But the question of why it is seen as a disease-bearer is not substantially different from that of why it is linked with spirit activity. As far as the small land birds, the principal message-bearing forms of the atua, are concerned, there is little to suggest that they have ever had any substantial effect upon agricultural or other interests.

In his discussion of sea creatures in Tikopia spirit belief, Firth (1967) speaks not only of animals as physical threats but of animals representing moral dangers. Perceptions of sexual suggestiveness are one means by which a particularly charged emotional orientation towards an animal can be established. Two Tikopian 'totemic' animals, major spirit forms, the eel and the octopus, are seen as embodying aggressive male sexuality. In Mangaia, only one type of octopus, 'eke tapairu (Ch.7-36.2), is known to have been associated with the supernatural. Most types were, and are, freely eaten (except by Seventh Day Adventists). I never heard any comment to suggest that they are seen as sexually suggestive. However,

Mangaian traditions are equally as specific as the Tikopian concerning the phallic associations of eels. The myth of Tuna (Ch. 10) shows the fresh-water eel in the role of seducer/sexual aggressor. There are hints of similar constructions involving marine eels. One middle-aged informant reported his late grandmother as saying that women fishing on the reef at night had to be 'careful to keep their legs together' because of the pu'i kotuku (Ch.5-95.1). This eel is reputed to travel through the water with its head erect and is strongly attracted to light. Since torch-fishing was a traditionally female activity, it is highly likely that women would find themselves pursued by eels attracted to the torches. It is interesting to compare the isolated comment of my Mangaian informant with the entry 'tuua' in the Rarotongan dictionary (Savage, 1962).

tuua n. the name of a species of muraena...Its habit is mainly to swim on the surface of the sea with its head erect out of the water. According to native accounts this fish is much dreaded by women, for the reason, that if a woman were on board a passing canoe, the fish would leap out of the water and seize the mammary gland (breast) of the woman and inflict a nasty wound before it could be dispatched.

The Rarotongan tu'ua would seem to be the same as the Mangaian pu'i kotuku, noted for the characteristic upright posture of the head (with phallic connotations?). It is tempting to see the presentation of marine eel attacks in terms of masculine sexual aggression as emphasizing male dominance of the realm of the open sea. Women in canoes, or on the reef, impinged or bordered upon this zone of male control; they confronted masculine power in the form of eels.

In the last chapter, I also suggested a connection between sharks, also important Mangaian 'totemic' animals, and active, aggressive

masculinity. The shared term 'pane' does indicate a link between shark's snout and penis, but the perception of sexual suggestiveness is certainly not as clear-cut as with eels.

To add some perspective, it should be noted that there is one group of animals which present-day Mंगाians find highly suggestive but which have no known associations and have, apparently, never been a focus for highly charged emotions. These are the sea-cucumbers, which very readily lend themselves to phallic comparisons. Besides their general form, some species emit the white Cuvierian tubules as part of their defences, in a manner comparable to ejaculation. In addition, the sea-cucumber ngata (Ch.5-2), though often limp when first picked up, may be induced to become firm, almost rigid, by repeated rolling between the hands, a response which I have heard compared to penile erection. However, despite their phallus-like appearance and suggestive aspects of behaviour, the sea-cucumbers are and, on the evidence of historical tradition, have always been, a part of women's fishing, as food, probably better suited to women and children than to men. The contrast with the phallic eel,

once forbidden food for women, a threat and object of repulsion, is obvious. The sexual suggestiveness of the sea-cucumbers is only referred to in light-hearted joking. It is unlikely that this suggestiveness is a recent Mंगाian discovery and correspondingly likely that the humorous approach to the phallic properties of sea-cucumbers co-existed with the highly charged attitudes to the 'totemic' eels. There has probably always been a distinction between sexual suggestiveness per se and the kind of sexual danger associated with eels, which also depends upon their mobility and aggression. Aggression is certainly not a quality readily associated with the normally flaccid, relatively immobile holothurians.

Firth (1967) has also suggested that movements out of natural element - the stranded whale, the eel or octopus appearing on the reef - may have implications of danger for Tikopians. Such a suggestion can be related to general theories of pollution seen in terms of 'matter out of place'. Considering Mangaian 'totemic' creatures, only eels provide a convincing instance of animals capable of moving from their element. Marine eels are certainly able to wriggle over the raised reef ridge. Traditions speak of fresh-water eels emerging from the streams and lakes. During the dry season they may be encountered in or on damp mud. It could be argued that the Spotless Crake, a 'totemic' bird is marked by its tendency to remain on the ground rather than taking to the air as do other birds. But, it is an exception among the spirit-birds, the others being very adequate fliers. There is no reason to assume that its limited flight was of any great significance in determining its selection as a spirit creature. As for stranded fish/cetaceans, it is not clear whether they were formerly regarded as spirit manifestations. However, we do know from Gill (1876a:129)

that unspecified 'large stranded fish' were subject to a ritual division. The distribution of the fish's body, described in the last chapter, parallels closely the distribution of the flesh of stranded dolphins among the Tikopians (Firth, 1930.-I), though specifically related to territorial rather than tribal or clan divisions.

On the whole, there is no strong evidence of 'out of element' movements being treated as inherently dangerous. The octopus that found its way up on to the reef ridge at Mangaia was likely to find itself gathered by a woman sea-food collector. But, untypical behaviour on the part of an animal could be seen as an indication of spirit manifestation and, in some circumstances, a creature's movement from its usual

element could be taken as such. Legend has it that the atua Papango would appear as an eel on dry ground at the ritual site of Maraetenia, presaging the death of an important member of the Ngariki tribe. The capacity of eels to appear out of water is clearly highly relevant to this tradition. Since some marae were fairly close to streams and swamp, it is not impossible that eels were occasionally seen on certain sites. As indicated in Ch.9, movements which can be seen as some kind of approach to human beings, whether a direct approach to an individual, entry into a house, or persistent flying over a village, are a feature which is common to most Mangaian spirit-omen animals. In some cases 'out of element' movements may be interpreted in this light, as approaches implying communication.

We have, then, a good correspondence between 'totemic' animal status and non-food or doubtful-food status, but a more partial correspondence of 'totemic' status and capacity to harm, whether through direct physical action or through some more insidious action representing a moral threat. An explanation of 'totemic' selection in

terms of the kinds of practical interests which Firth (1970a) sees as predominant in the Tikopian case does not appear to be generally applicable to Mangaia.

This is not to say that the 'danger' function is not relevant to the selection of any 'totemic' animal. I would suggest that, seen in relation to the traditional conceptions of power and control, both 'danger' function and non-food status are relevant to the spirit-animal role. Spirits may be regarded as manifesting a power (mana) beyond normal human capacities. Traditional notions of tapu (taboo) have been eroded in the post-mission period, but accounts of past infringements of ritual restrictions suggest that spirits were seen as the usual avenging agents,

the active powers causing sickness or harm. This is comparable to Levy's (1973:156-8) findings on the relations of mana, tapu and spirits in Tahitian belief. Spirit power is at the limits of human control, requiring special techniques or ritual procedures to avert or to channel it. Creatures such as the shark and eel, that can reverse the normal power relationships between man and fish by becoming the attackers, provide potent expressions of active power and of human limitations suggestive of relations with the spirit world.

The word 'ta'ae' is applicable both to animals and to spirit beings. The grisly and destructive helpers of the underworld goddess Miru were ta'ae, 'demons' or 'monsters'. In a Manganian song, composed about 1820, the 'totemic' birds kau'a are described as 'manu ta'ae', rendered by Gill (1876a:49) as 'the incarnation of a god'. One of the first descriptions I received of the spirit-bird rakoa (Ch.6-19) specified this as a manu ta'ae. In this context, I was given to understand that

'ta'ae' implied wildness and a potential unfriendliness towards man. The rakoa lives in rocky places away from human dwellings, its wildness making its occasional persistent approaches to villages all the more remarkable and suggestive of purpose. Though 'ta'ae' may be translated as 'ferocious', in some cases it is a particular orientation towards man, rather than any actual capacity to cause harm, that is indicated. There are parallels with the English word 'wild', which can be used to suggest ferocity or simply the lack of direct human control. Even if the link between 'totemic' status and danger potential is strictly limited, this may be the tip of a wider association between 'wildness' and spirit activity. In this, parallels might be drawn with Fortes's (1945:141-5) proposal that wild or aggressive animals were particularly suitable as symbols of the unpredictable ancestral spirits of the Tallensi. The inclusion of introduced

domesticates among the forms adopted by ghosts does not necessarily argue against an association between spirits and the wild. In Ch.9, I have discussed some of the possible special reasons for their appearance in spirit-animal roles. Also, in these cases, we are not usually talking of a spirit manifesting itself in a real animal but of a spirit appearing, in special circumstances, in animal shape. So, for all practical purposes, a pig is always, and only, a pig, even if at Araoa, at certain night of the lunar month, a tupapaku is thought to appear in pig form. There is no question of pigs or cattle being thought of as 'tupapaku animals' in the way that the upoa and rakoa are 'tupapaku birds'. Furthermore, spirits in domesticated form are closer in their supposed behaviour to animals running wild than to those fully under human control.

In the absence of any traditional wild/domesticated contrast, in the pre-contact period the continuum of human control over animals ranged from the relative lack of constraint upon certain non-food 'wild' creatures and the unpredictability of relations with those noted for their aggression to the consistent domination of those consistently taken with ease for food. The spirit shark can be contrasted with the netted fish/victim, an image of powerlessness. The opposition between tapu and cooking or cooked food, so evident in New Zealand Maori ritual symbolism (e.g. see Smith, 1974:28-33), is not so clearly marked in the records of the Southern Cook Islands, the laws of tapu having been poorly recorded. However, there are indications of some opposition between the commonness of food and cooking and personal power or sanctity. One Rarotongan legend explains that before the body of the chief Tutapu could be cooked, in the island's first act of cannibalism, special ritual measures had to be taken to remove the tapu of his arikiship (Maretu, 1911). Without these measures, the cooking ovens had no effect. In this case, tapu was supposedly so strong that it defied the power of cooking to

dispel it and make the corpse noa, or common. On the other hand, the Manganian cannibalistic insults recorded by Williams (1837:242) suggest a more common pattern in which the enemy is threatened with negation of his personal power by conversion to food or to some common (possibly food-related) object. The conversion to food implies the exaltation of the eater's power over the eaten. If the imbalance of power is not actual, it may rebound against the eater. So, a woman breaking the Manganian tapu on the eating of eels was considered to release in herself destructive supernatural powers beyond her capacity to control (Gill, 1876b:279). Food status and spirit power do not mix easily. The negative correlation between food-animal and 'totemic animal' roles is to be expected.

I would contend that, in terms of the traditional Manganian worldview, not only are animals in general well-suited to represent spirit beings in their interactions with man but that some animals, principally by virtue of their behaviour, are more suitable than others. One can in any case, contrast those animals consistently associated with significant spirit activity with those in a more intermittent association, as in the distinction just drawn between the tupapaku birds and the domesticates whose form spirits are sometimes said to adopt. In the pre-contact period, defeated tribes living on the makatea plateau placed various birds, crabs, and bats of that region under a food taboo, as potential representatives of local protective spirits. Under more normal conditions such taboos did not hold. Whether it was assumed that such spirits presented themselves in animal form only to fugitives, or whether the creatures always had a spirit potential and that the power of the local spirits had greatest relevance to fugitive tribes, is not clear. In either case, their position was rather different from that of the 'totemic' animals linked with tribal deities,

conveying messages to their worshippers. As we have seen, many of the true spirit-animals of Mangaia are communicators, approaching human beings, or in some manner invading their space, and advertising their presence, frequently by the use of sound. Their visits are intermittent, the rarity of occurrence generally reflecting the magnitude of the communication. The animal behaviour parallels closely the behaviour expected of spirits entering the human realm to make contact. At the same time, there may be other features of appearance or behaviour directly suggestive of the supernatural - the elusiveness of the cricket vava in relation to the piercing noise it

produces, possible phosphorescent phenomena, the disturbingly human qualities of the petrels' or shearwaters' nocturnal calls, etc.

Returning to Worsley's views, having rejected the idea of a highly structured Groote Eylandt totemic system, he describes the totemic elements as constituting a set which is 'congeries-like'. The term 'congeries' he borrows from the psychologist Vygotsky (1962:59), who defines it as a 'vague syncretic conglomeration of individual objects that have somehow or other coalesced into an image in (the) mind'. This is the vision of a 'random, fortuitous, and haphazard' totemic set referred to earlier. But Worsley (1967:153) also adopts Vygotsky's term 'complex', suggesting that the totemic distribution is 'founded either upon "congeries thinking" or "complex thinking"'. He explains that the objects within a 'complex' are united not solely by subjective impressions but by 'concrete and factual' bonds that exist between them. He makes Vygotsky's distinction between complex and 'concept'.

Any factually present connection may lead to the inclusion of a given element into a complex. While a concept groups objects according

to one attribute, the bonds relating the elements of a complex to the whole and to one another may be diverse as the contacts and relationships of the elements are in reality.

(Vygotsky, 1962:62)

Presumably, it is 'complexes' that Worsley (1967:154) has in mind when he speaks of totemic sets being 'established along quite discernible multiple lines of association (connections in Nature, connections in myth, connections effected in historical cultural

experience, etc.)'. But this is not fully brought out, the emphasis remaining on organisation in 'congeries'.

Having, myself, rejected the idea of a Manganian totemic system ordering either the set of animals associated with the tribal gods or the more extensive set of spirit-animals, I do not find the view of these sets as congeries particularly satisfying. It seems to imply a more haphazard pattern of selection than I believe to have been the case. I would prefer to make a limited comparison with what Vygotsky (1962:62) termed an 'associative complex'. In this form of complex, entities are united by their resemblance (or other factual links) to some core item. However, the resemblance detected between the nucleus and each of the other member entities may be different. Membership of the set is not based upon the possession of one feature or group of features held in common. This differs from the more familiar 'chain complex' which lacks a core or nucleus, and membership of which is based upon relations of resemblance traced through single elements in progressive linkage (Vygotsky, 1962:64). The 'chain complex' has been compared to Wittgenstein's (1958:para.67) conception of categories based upon 'family resemblance'. It is also central to notions of polythetic classification (see Needham,

1975). In contrast, the 'associative complex' has been largely ignored in recent studies of classification. But, with rising interest in the role of prototypes in category structure, this mode of category formation may be due for some greater consideration.

It is possible to present Manganian spirit-animals as a set centred upon the indigenous image of spirits themselves, relating to this image in various different ways. Like spirit beings, they may make overt but occasional approaches to humans, some making sounds to further imply communicative intent. They may be seen in locations associated with spirit activity. In connection with ideas of power and its manifestation, they tend to be wild or uncontrolled creatures, probably not taken as food. They might demonstrate actual aggression or suggest symbolic sexual aggression - expressing active masculine power fully manifest in the ultra-human powers of the spirit world. Other inexplicable or unnerving features of behaviour or appearance can contribute to an emotional orientation appropriate to the supernatural. So, while it is probably not possible to trace necessary and sufficient conditions for 'spirit-animal-ness' the links between 'spirit' and a particular animal can usually be interpreted in terms of one or more appropriate characteristics of the creature concerned; hence the analogy with the 'associative complex'. It can really only be said to be an analogy, since Vygotsky's 'complex' is described as being founded upon factual bonds discovered by direct experience of the entities concerned. I am doubtful that a direct experience allowing for the identification of factual links between animals and spirits is possible. In the face of my scepticism about the existence of the spirit world, I must conclude that what is involved here is a comparison of mental representations not necessarily founded in experience. But the resultant structure is essentially the same. Worsley's use of 'congeries' takes similar liberties with Vygotsky's conception.

The practice of arguing back from the perceptible characteristics of an object to its apparent symbolic appropriateness has always been suspect, sometimes simply a demonstration of the inventive capacities of the interpreter. Barth (1975:172, 212) has recently re-emphasized the pitfalls of this type of approach and, in relation to his study of the Baktaman, stressed the role of contrivance within the ritual framework in establishing a symbolic interpretation, underlining the need for fully

contextualised analysis. Unfortunately, many details of the Manganian ritual context which might contribute to the interpretation of the role of 'totemic' animals are no longer accessible to investigation. Working with the available data, I recognise that I may, in part, be open to Barth's criticisms in my tracing of the associations between animals and spirits. However, I feel strengthened in a number of my conclusions by the fact that the spirit-animals are not simply symbols passively manipulated; they are embodiments. The animal does not merely 'mean' spirit; it is spirit, and enacts spirit. When I speak of the role of spirit-animals, the word 'role' can be taken very literally, for, in a real sense, they are actors. A certain correspondence between animal and spirit action is necessary for the fulfilment of their role.

But what of the relationship between symbolic/'totemic' selection and the categories of 'folk classification'? In view of the distinctly non-systematic character of the Manganian animal categorisation and the fuzziness of a number of major category boundaries, it is not surprising that clear cases of taxonomic anomaly are not readily found. What would appear to be the most obvious case of anomaly, the inclusion of the flying-fox in the bird-dominated category 'manu rere', despite its acknowledged resemblances to rats, does not seem to have been accorded any special significance. Of course, the inclusion can always be

justified by treating 'manu rere' as a descriptive - implying a simple deductive rule for category membership. There can be no doubt that the flying-fox is a 'flying manu', though it is an untypical one. In Ch.10, I suggested that the human-like fat layer of the cetaceans ta'airangi brought an element of anomaly to their inclusion in the 'fish' category 'mangaika', an anomaly which is reflected in their connection with the man/fish father of the gods, Vatea. Doubts about

the suitability for food of lizardfish (Ch.4-92.) and their former 'sacredness' on Rarotonga both seem to revolve around their lizard-like appearance. Both in Mangaia and Rarotonga, lizards are non-food creatures and some have been associated with spirit powers. This case does seem to accord with Tambiah's third proposition (quoted in Ch.1) that a creature of one class may be treated as anomalous, and of doubtful food status, if it shares characteristics with animals of a class considered inedible and carrying strong values.

In Mangaia there is nothing to suggest that lizards (moko) are seen as anomalous. However, the association between lizards and spirits is one of the most persistent spirit/animal connections throughout Polynesia, from Hawaii to Easter Island and New Zealand. The link between lizards and the supernatural must, surely, pre-date the establishment of a distinct Mangaian culture. It is interesting to note that New Zealand Maori tradition does hint at some category anomaly, lizards being presented in folklore as a sort of defecting relative of the fish (Shortland, Downes, 1937). Tregear's (1891) Maori-Polynesian comparative dictionary gives 'ika whenua', 'fish of the land', as a lizard term. Further inquiry may be able to establish whether this fish/lizard connection is a uniquely New Zealand Maori conception or whether it reflects an older tradition.

The turtle, formerly marked out as the special food of the Shore High Priest (and on Rarotonga as an animal particularly associated with the supreme chieftainship), is certainly regarded as a very untypical member of the 'fish' category 'mangaika'. But it is not really thought to closely resemble creatures of any other category. Those who doubt that the turtle is really a mangaika prefer to say simply

that it is an 'onu', in a category of its own. For them, it is not so much an anomaly as what Tambiah (1969) describes as an 'unaffiliated animal'. Tambiah's first proposition on classification and symbolic selection suggests that such creatures are likely to be accorded an ambiguous food status. An 'unaffiliated' animal is taken to be one 'not placed in an ordered system of major classes'. In Mangaia there are really only two overt animal super-categories 'manu/manumanu' and 'mangaika'. Even if, in forming a set of 'major classes', one were to add to these the lesser magnitude categories of 'karai'i' (crabs) and 'koura' (lobsters, shrimps, and prawns), the number of potential 'unaffiliated' animals would still be very large, particularly among invertebrates. This is, of course, because the major categories expressed in the terminology do not provide an exhaustive and systematic division of the animal world. Nor do Mangaians seem to experience the need to place all lesser animal categories in overt broader classes. In this situation, to find creatures that approach what Tambiah really intends by 'unaffiliated animal', it is probably most profitable to consider those apparently marginal to major categories, as 'onu' is sometimes seen as marginal to 'mangaika'. It would not be unreasonable to see the symbolically important eels as 'unaffiliated', also marginal to 'mangaika' (but marginally within that category according to some). However, unless former attitudes to animal categorisation were profoundly different from those of today, with their lack of emphasis on

systematisation or on the definition of category boundaries, it is difficult to believe that this kind of marginality has had a profound effect on symbolic selection. Certainly, among present-day informants, there were no overt suggestions of a

sense of logical insufficiency in cases of marginality and peripherality. They expressed themselves freely in category approximations - 'it is not a true karai'i', 'x is very close to a mangaika', 'x is similar to a mangaika' etc.

I am sceptical of Sperber's (1975) proposal that statements of the type 'x is not a true member of its kind', 'x is a true member of its kind', 'an eagle is more of a bird than an ostrich is', 'the python is more of a snake than an adder', necessarily pose logical paradoxes. These, he suggests, arise from the fact that the statements seek to, as it were, 'go back' on the taxonomic definitions which they presuppose. This logical inconsistency would lead to failure of incorporation into encyclopaedic 'knowledge of the world' and to eventual entry into symbolic knowledge. This follows from Sperber's assertion that taxonomic definition is an all-or-nothing affair. One can be more or less certain of an animal's category membership, but either it is a member or it isn't and that is that. To my mind, this implies an overly rigid conception of mental representation, leading to a more rigorous application of class logic than is necessarily the case in actual processing. As we have seen, judgements of typicality and judgements of category membership seem to be linked at a very basic level. There is certainly no 'fuzziness' in Sperber's approach. His overall framework for the distinction of types of knowledge is dependent upon a fairly strict interpretation of the ever controversial distinction between the analytic and the synthetic.

There seems to be no Mangaian animal category with a 'special taxonomic status' comparable to that of the cassowary among the Kalam (Bulmer, 1967). According to Bulmer, the 'special taxonomic status' is a product both of the lack of objective congeners and a high

socio-utilitarian importance, developing from a creature's overall position in worldview. Possibly, the position of the Mangaian fresh-water eel category ('tuna') relative to other animal categories has been influenced by some such factors. Though they have marine eel congeners, they are separated from these by their location. Set apart from other fish by their form, eels have been prized as food, taboo to women, and have featured prominently in myth and 'totemism'. In their mythical relation to Tumu te ana oa, a supernatural being of the island's interior, fresh-water eels are clearly distinguished from all the marine fish coming under control of Tinirau. Though the symbolic classification of myth is no longer familiar to most Mंगाians, the contrast between ocean and interior is still important in understanding why, in terms of the everyday animal categories of the present population, the 'tuna' remain somewhat isolated.

Some of the classificatory 'separateness' may be attributable to their marked ritual and mythical importance. But, in general, Bulmer (1978:14) proposes, selection for a 'totemic' role follows from taxonomic salience rather than vice versa. He indicates that, among the Kalam, the 'totemic' animals are selected from the largest, or otherwise most singular, members of principle animal categories. In Ch. 9, I have indicated that it is difficult to make generalisations as to whether Mंगाian spirit-omen animals are unusually large or visually remarkable members of the categories within which they fall. That discussion can now be expanded to consider animals of other ritual or mythical significance and the possibilities of behavioural singularity.

For the 'mangaika' we might list as 'totemic' or symbolically prominent:

<u>Mango</u>	Shark	Major spirit animal
<u>Ta'airangi</u>	Cetacean	Creature of Vatea, father of the gods
'sprat' ?blenny	Unidentified,	Material form of <u>atua</u>
<u>'Akura</u>	Swordfish	Restricted food of High Priest
<u>'Onu</u>	Turtle	Restricted food of High Priest

Now, the largest of the mangaika are the whales (to'ora), which are notably absent from this list, though the cetaceans are represented by the supposedly somewhat smaller ta'airangi. The bodily structure of all the cetaceans does, to a degree, set them apart from other 'fish'. The shark and the swordfish are certainly among the largest 'true fish' and are marked as potentially dangerous. On the other hand, the mysterious 'sprat' must surely be among the smallest of fish. The turtles, whether or not they could truly be regarded as anomalous or 'unaffiliated', are most clearly singular in their appearance relative to other mangaika.

For the eels, marginal to the mangaika, we have:

<u>Tuna</u>	Fresh-water eel	Major spirit animal, Forbidden eating to women in pre-Christian period
<u>Pu'i</u>	Conger eel	Possible omen behaviour for fishermen
<u>Pu'i kotuku</u>	Snake eel	Possible aggression against women

Again, the largest of the group, in this case the moray eels, are not specified as of prime importance. However, the morays did, in all likelihood, fall under the traditional women's food taboo.

Perhaps tuna might be seen as the largest members of an independent category of fresh-water creatures. Most eels are regarded as

potentially aggressive but, once more, it is curious that the really ferocious morays, which some Mंगाians consider more dangerous than sharks, have not been specially marked. The particular distinctive body form of the eels is, of course, important in relation to the phallic analogies expressed in myth.

Among the 'manu', consider first 'manu rere' (birds and bats):

<u>Kerearako</u>	Warbler	Material form of <u>atua</u>
<u>Kau'a</u>	?Long-tailed Cuckoo	Material form of <u>atua</u>
<u>Tanga'eo</u>	Kingfisher	Material form of <u>atua</u>
<u>Mo'omo'o</u>	Spotless Crake	Material form of <u>atua</u>
<u>Upoa</u> and <u>Rakoa</u>	Shearwaters ?and Petrels	Ghost birds

None of the largest manu rere are represented on this list. Although the upoa and rakoa are remarkable for their disturbing nocturnal calls and the crake is arguably unusual because of its largely terrestrial habits, it is not easy to see in what way the warbler and kingfisher are especially salient representatives of the 'manu rere' or any covert sub-division of that category. On the other hand, the obviously remarkable flying-fox does not carry any special symbolic burden.

The lizards (moko) are small, poor examples of the membership of 'manu', possibly being larger manu rikiriki. Of the two lizard

categories distinguished in the terminology, one has connections with the supernatural:

<u>Moko karara</u>	Gecko	Material form of <u>atua</u> , minor Omen
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One species of moko karara is a little larger than other lizards. They are not considered prime instances of any animal category except 'moko'.

Nothing in informants' accounts suggests that moko karara are in any way

more salient in their category than the skinks, mo tukutuku. However, unlike the skinks, they are frequent visitors to houses.

There remains that hazy grouping of small arthropods of the land, manu perhaps, probably manu rikiriki, possibly manumanu, vaguely perceived as some sort of unity. Despite general disinterest in many of the creatures of this vast group, and the category uncertainties, there are still good examples of lesser spirit-omen animals among them, as well as the traditionally more important 'totemic' centipede.

<u>Veri tara</u>	Centipede	Material form of <u>atua</u>
<u>Vava</u>	Bush cricket	Ghost animal, once connected with <u>atua</u>
<u>Uru'apuka</u>	Grasshopper	Sickness carrier
<u>Iriano</u>	Sphinx moth	Minor sign or omen
<u>Tukutuku ra'o nui</u>	Crab spider	Lucky sign

I have already observed that, with the exception of the cricket, these are not only the biggest members of the covert 'small arthropod'

category but also large members of its overt and covert sub-divisions - in fact, the largest of 'grasshoppers and crickets', the largest of 'centipedes and millipedes', the largest of 'butterflies and moths', and the largest of 'spiders'. The exception, vava, is outstanding, not by virtue of its size but by its remarkably strident noise.

Bulmer (1978:15) suggests that, for the Kalam at least, animals of ritual importance may be selected as 'salient representatives of groups which collectively are of utilitarian or socio-utilitarian importance'. This proposal is more credible with respect to some parts of the preceding Mangaian listings than others. The idea that the two ritual offerings to the High Priest of Rongo, the swordfish and the turtle, might have been selected as representative of in general is compelling. All traditions

indicate that they were prized examples of the fisherman's production, prime instances of the most prestigious grouping of 'ocean fish', their offering expressing Rongo's supremacy over all such vital activity. But, it should also be recalled that, in time of war, the supremacy of Rongo was given even greater emphasis as the products of man's most prestigious subsistence activity were replaced by man himself and human beings became 'fish' in sacrifice. Thus, in one sense, turtle and swordfish stood not only for 'mangaika' but for 'tangata', man.

Reasonable cases can be made for the salience of ta'airangi and shark in relation to 'mangaika' or 'fish of the ocean', or for the eel in a covert of 'creatures of freshwater' category. The case for such 'taxonomic salience' as a factor in the selection of particular manu is much less convincing. Among the birds it is rather the nature of their interaction with man which is of major importance. Though the

selected bird vary considerably in the degree of shyness they display, all will, intermittently, make unusually close approaches to man whilst calling. In doing this they conform to a pattern of behaviour which Bulmer (1979 and n.d.) has also identified as of importance to the Kalam in establishing mystical associations of bird species. Despite the apparent 'taxonomic salience' of the lesser spirit-omen creatures, I would argue that it is their sheer noticeability rather than a particular standing in relation to category that must be looked to first in explaining their selection. Like the omen birds, they approach man intermittently and draw attention to themselves. One soon becomes accustomed to the continuous parade of small animals through the living spaces of Mangaia and largely ignores them. But, I can attest from experience that creatures like the grasshopper, uru'apuka, bounding across the room, the sphinx moth, iriano, buzzing and banging against walls and ceiling, or the

cricket, vava, making the room ring with sound, are extremely difficult to ignore. My encounters with them stand out in my mind. They were also successful in catching the attention of my informants. This group of creatures is composed of the largest and most generally remarkable incursors into the domestic environment. Their being large and remarkable members of local small-animal categories is probably a secondary consideration. As occasional but highly visible or audible visitors, they create a sense of event in their own right.

It is, perhaps, worth wondering why the crustaceans do not figure with any prominence in spirit-animal traditions. The animals of the categories 'karai'i' and 'unga', 'crab' and 'hermit crab', are of much greater utilitarian importance to Mंगाians than any of the insect and small arthropod grouping. Striking, 'salient' members of crab

categories could readily be found - the poisonous angatea, for example, or, on land, the strange, long-legged irave (Cardisoma longipes), and giant, burrowing coconut crab, unga puku'ara. Possibly, crabs simply fail to 'come to' human beings in the way that seems to be necessary to establish a spirit-omen role. Though small crabs are now seen in Mंगाian houses, this would not have been the case in the pre-mission period when houses were situated in the interior of the island. Encounters with crabs in the wild are not particularly striking. On detecting movement, they usually scuttle away quickly and silently, or retire into their protective shell. Avoidance rather than approach seems to be the universal principle.

While not denying some relation between the Mंगाian animal categories of everyday experience and the processes by which animals have been selected for ritual or mystical significance, I would still maintain that, at least as far as the set of spirit-omen animals are concerned, the

particular aspects of behaviour and appearance which render them suited for this role are more important than considerations of category. Clearly, I am not proposing a general theory of selection. Indeed, I stress the need to look at a specific case, at the specific role that animals play. There may well be totemic systems of the type that Lévi-Strauss has characterised and may equally well be other totemic sets as randomly constructed as that described by Worsley. It happens that Mangaia does not provide an example of either of these. In any case, it has long been known (though from time to time forgotten), that Polynesian societies could only be described as 'totemic' in a very loose sense of the word. It would hardly be surprising if the Polynesian institutions differed from classical cases of totemism (where there is a more direct link between

totem and social category) in at least some of their principles of selection. The work of Firth has given many insights into such Polynesian institutions. We have seen many of his findings for Tikopia reflected in Mangaia. But, however valid his theory of the pragmatic basis of selection might be for Tikopia 'totemism', it is less than entirely convincing in the Mangaian case. However, it was also Firth who clarified the way in which animals mediated the communication of man and spirit in Polynesian belief, and it is the exploration of this line of thought that further clarifies the Mangaian spirit-animal phenomenon.

Clearly, there are also societies which lay much greater stress upon classification than do the Mangaians. The Kalam with their elaborate division of the animals according to edibility are evidently one such. In such societies, one might expect classificatory concerns to have a much greater influence upon the processes of symbolic selection. It might be argued that Mangaian concern with classification in general has declined with the attrition of their classification of social groups, with the decline of

the kopu as a formal entity. But, nothing in the tradition suggests that there was ever any strong symbolic link between these formal social categories and the categories of the natural world beyond that, through a tribal atua, to a 'totemic' species. Of course, in social terms, the ideas of potentially belonging to more than one category and of webs of inter relationship between distinct categories were far from foreign to pre-contact Māngaians. Every individual had the possibility of belonging to at least two kopu tangata, the tribes of his two parents. Membership would be settled by dedication to one or other tribal god, though re-dedications were not unknown. Although rules of kopu tangata exogamy initially

stressed the distinctness of the tribal groups, they also created a complex web of cognatic bonds between the members of different groups which could, on occasion, be called into play. It is possible that this type of situation devalues the symbolic potential of category boundaries. However, for those who would wish to make overly simple generalisations about the relations of the forms of all classification to the forms of social structure, Māngaiā is not a particularly happy example. The weakness of hierarchical organisation amongst animal categories can hardly be said to reflect the structure of a society in which, even today, three ranks of chiefs are recognised, each having authority over land divisions of different size. The ariki has general authority over the island, the kavanas over the six major districts, the 'ui rangatira over the smaller tapere which sub-divide those districts. The perfect partition of taxonomy is made concrete

In the previous chapter, I have argued that the Māngaiā data does not present a single over-arching classification which serves to integrate disparate areas of experience. Rather, within certain limits, the set of animals can be repeatedly re-interpreted in serving distinct symbolic aims.

(Some of the productivity of Manganian animal metaphor can also be seen in Appendix 4.) In some contexts, a fairly clear distinction between 'mundane/technological' categories and 'symbolic' classification does seem possible. The symbolic classification that locates different animal groups under the control of the first three children of the primal mother, Vari, simply ignores many of the considerations central to the everyday animal categories employed in practical activity. It places all emphasis upon ecological zone, classing together a very diverse set of animals of the interior. It

is the scheme of zones which carries the symbolic burden, and this is asserted at the expense of certain 'mundane' understandings about animal relationships. However, it is not, it seems, asserted at the expense of an everyday understanding of the island's structure and natural zonation (Mark, 1977). The incorporation of one 'mundane' categorisation into the symbolic may preclude the complete integration of others. In addition, as far as animals are concerned, there may have been some feedback from the symbolic schema to Mangaians 'mundane' uncertainties about the relations of fresh-water and other fish. A rigid division between the 'mundane' and 'symbolic' categories could not be supported.

In Manganian symbolic schemes one cannot avoid noting the prevalence of themes of hierarchy and relative power. The concentric zone schema, just mentioned, expresses the status relations of female/younger male/senior male. The traditions relating to eels again mark the distinctions between male and female status. Fish offerings at the Marae o Rongo were made in recognition of the sacred hierarchy stemming from the High Priest of Rongo. The fish/victim sacrifice was

used to confirm the whole structure of land-holding rights proceeding through the ranks of chieftainship; and so on. Perhaps, this might be taken as confirmation of Bloch's (1977) assertions concerning the inherent relation between ritual communication, symbolic classification, and institutionalised hierarchy. But, equally, this symbolic orientation can be argued to stem from the centrality of status concerns which is so characteristic of Polynesian social organisation and which is so evident in the history of Mangaia. With this particular stress on rank, status, and power, it is predictable that these should be evident in the symbolic constructions of the animal world of the Mंगाians.

Appendix 1

Systematic Listing and Index

This systematic listing of animals referred to in the main text is ordered as follows:

1	2	3	4	5
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Column 1: Zoological identification.

Column 2: Common name, where applicable.

Column 3: Main reference in text. The first number given is that of the relevant chapter. So, for 5-24.2, see Ch. 5, entry 24.2.

Column 4: Common Manganian name. Where a term is given in quotation marks this implies that it is applied loosely. The creature listed is not a prime example of the category to which it refers

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Column 5: Basis of zoological identification.

- D - Informants' descriptions.
- P - Descriptions supported by informants' identification of photographs.
- S - Personal observation, notes of sightings.
- SPh.- Specimens photographed in colour.
- C. - Specimens collected and. retained - molluscan shells, dried insects, crab carapaces, urchin tests, etc.

CNIDARIAHYDROZOA

SIPHONOPHORA

? <u>Physalia utriculus</u>	Man of War Jellyfish	5-62.	<u>Tutae to'ora</u>	S
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PLATYHELMINTHESCESTODA

?Cestode spp.	Tapeworms	7-26.	<u>Toketoke</u>	D
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ASCHELMINTHESNEMATODA

Nematode spp.	Intestinal Worms	7-26.	<u>Toketoke</u>	D
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STRONGYLIDA

Ancylostomidae

Ancylostomid sp.	Hookworm	7-26.1	<u>Toke matau</u>	D
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ANNELIDAPOLYCHAETA

Nereidae

Nereid. sp.	'Sea- centipede'	5-61.	<u>Veri moana</u>	D
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Amphinomidae

<u>Eurythoe</u> <u>complanata</u>	Fireworm	5-60.	<u>Veri kaka'o</u>	SPh.
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OLIGOCHAETA

Large terrestrial Oligochaetes	Earthworms	7-26.	<u>Toke</u>	S
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MOLLUSCAGASTROPODA

ARCHAEOGASTROPODA

Patellidae

<u>Patella flexuosa</u> <u>flexuosa</u>	Star Limpet	5-9.	<u>Mapi'i</u>	C
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Acmaeidae

<u>Pateiloida</u> <u>?conoidalis</u>	Cap Limpet	5-10.	<u>Mama</u>	C
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Turbinidae

<u>Turbo setosus</u>	Turban Shell	5-11.	<u>Ariri</u>	C
<u>Turbo argyrostomus</u>	Turban Shell	5-11.	<u>Ariri</u>	C
<u>Astraea rhodostoma</u>		5-12.	<u>Karikao</u>	C

Neritidae

<u>Nerita plicata</u>	Nerite	5-13.	<u>I'i</u>	C
<u>Nerita polita</u>	Nerite	5-13.	<u>I'i</u>	C
<u>Theodoxus</u> <u>chlorostoma</u>	Black Water- snail	5-32.2	<u>Pupu tako</u>	C

Helicinidae

<u>Helicina flavescens</u>	Yellow Snail	5-32.1	<u>Pupu renga</u>	C
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MESOGASTROPODA

Littorinidae

<u>Echinus cumingii</u>	Spiny Periwinkle	5-14.	<u>Avare oronga</u>	S
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Cerithiidae

<u>Cerithium nodulosum</u>	Horn Shell	5-15.	' <u>roaroa</u> '	C
<u>Rhinoclavis asper</u>		5-15.	<u>Roaroa</u>	C
<u>Rhinoclavis sinensis</u>		5-15.	<u>Roaroa</u>	C

Vermetidae

Vermetid spp.	Worm Shells	5-28.	<u>Ungakoa</u>	S
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Strombidae

<u>Lambis truncata</u> <u>sebae</u>	Spider Stromb	5-16.	<u>Pu</u>	SPh.
<u>Lambis chiragra</u> <u>chiragra</u>	Spider Stromb	5-16.	<u>Pu</u>	SPh.

Cypraeidae

<u>Cypraea tigris</u>	Tiger Cowry	5-17.	<u>Poreo</u>	SPh.
<u>Cypraea (Luria)</u> <u>isabella</u>	Cowry	5-17.	<u>Poreo</u>	C
<u>Cypraea (Lyncina)</u> <u>schilderorum</u>	Cowry	5-17.	<u>Poreo</u>	C
<u>Cypraea (Mauritia)</u> <u>maculifera</u>	Cowry	5-17.	<u>Poreo</u>	C
<u>Cypraea (Monetaria)</u> <u>moneta</u>	Money Cowry	5-17.	<u>Poreo</u>	C
<u>Cypraea (Erosaria)</u> <u>caputserpentis</u>	Snake's-head Cowry	5-17.	<u>Poreo</u>	C

Ovulidae

<u>Ovula ovum</u>	False Cowry	5-17.	<u>Poreo</u>	SPh.
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Cymatiidae

<u>Cymatium nicobaricum</u>		5-16.	<u>'pu'</u>	C
<u>Charonia tritonis</u>	Triton's Horn	5-16.	<u>Pu</u>	Sph.

NEOGASTROPODA

Muricidae

<u>Thais armigera</u>		5-18.	<u>'mangeongo'</u>	C
? <u>Thais</u> sp.		5-20.	<u>Mapara</u>	S

<u>Drupa morum</u>	Spiny Rock Snail	5-18.	<u>Mangeongo</u>	C
<u>Drupa ricina</u>	Spiny Rock Snail	5-18.	<u>Mangeongo</u>	C
<u>Morula uva</u>		5-18.	<u>'mangeongo'</u>	C
<u>Morula granulata</u>		5-18.	<u>'mangeongo'</u>	C

Magilidae

<u>Coralliophila</u> <u>violacea</u>		5-19.	<u>Matakura</u>	C
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Conidae

<u>Conus ebraeus</u>	Cone Shell	5-21.	<u>Popoto</u>	C
<u>Conus chaldaeus</u>	Cone Shell	5-21.	<u>Popoto</u>	C
<u>Conus lividus</u>	Cone Shell	5-21.	<u>Popoto</u>	C
<u>Conus catus</u>	Cone Shell	5-21.	<u>Popoto</u>	C
<u>Conus sanguinolentus</u>	Cone Shell	5-21.	<u>Popoto</u>	C
Other <u>Conus</u> spp.	Cone Shell	5-21.	<u>Popoto</u>	C

Terebridae

<u>Terebra crenulata</u>	Auger Shell	5-15.	<u>Roaroa</u>	C
<u>Terebra</u> sp.	Auger Shell	5-15.	<u>Roaroa</u>	C

OPISTHOBRANCHIA

Opisthobranch sp.	Sea Slug	5-29.	<u>Patito tai</u>	D
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ANASPIDEA

Anaspid. sp. (?Aplysiid)	Sea Hare	5-30.	<u>Ngau</u>	D
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NUDIBRANCHIA

Nudibranch sp.	Sea Slug	5-31.	<u>Tuatai</u>	D
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SOLEOLIFERA

Veronicellidae

? <u>Veronicella</u> sp.	Slug	5-35.	<u>Ngau</u>	SPh.
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PULMONATA

BASOMMATOPHORA

Ellobiidae

<u>Melampus flavus</u> form <u>luteus</u>	Ear Shell	5-33.	<u>Roro'ara</u>	C
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STYLOMMATOPHORA

Sublinidae

<u>Sublina octona</u>	Snail	5-32.	<u>'pupu'</u>	C
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Limacidae

?Limacid sp.	Slug	5-34.	<u>Patito 'enua</u>	S
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Bradybaenidae

<u>Bradybaena similis</u>	Snail	5-32.	<u>'pupu'</u>	C
		5-34.	<u>'patito enua'</u>	

BIVALVIA

MYTILOIDA

Mytilidae

<u>Modiolus auriculatus</u>	Mussel	5-27.	<u>Kakuku</u>	C
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Pteriidae

<u>Pinctada</u> sp.	Pearl Shell	5-23.	<u>Parau</u>	S
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Isognomonidae

<u>Isognomon perna</u>		5-23.	<u>'parau'</u>	C
<u>Isognomon ?legumen</u>		5-23.	<u>'parau'</u>	C

HIPPURITOIDA

Chamidae

<u>Chama ?pacifica</u>		5-22.2	<u>Pa'ua kute</u>	C
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VENEROIDA

Lucinidae

<u>Codakia</u> spp.	Lucine Shell	5-25.	<u>'tunani'</u>	C
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Tridacnidae

<u>Tridacna maxima</u>	Clam	5-22.1	<u>Pa'ua vava'i</u>	C
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<u>Tridacna crocea</u>	Clam	5-22.1	<u>Pa'ua vava'i</u>	C
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Tellinidae

<u>Scutarcopagia</u>	Tellin Shell	5-25.	<u>'tunani'</u>	C
<u>scobinata</u>				

<u>Quidnipagus palatam</u>	Tellin Shell	5-25.	<u>'tunani'</u>	C
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Psammobiidae

<u>Asaphia violescens</u>		5-24.	<u>Ka'i</u>	C
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Veneridae

Periglypta

Venus Shell

5-25.

'tunani'

C

reticulataCEPHALOPODA

TEUTHOIDEA

Teuthoid spp.

Squid

5-36.5

Mu'eke

D

OCTOPODA

Octopod spp.

Octopus

5-36.

'Eke

D

Some SPh.

ARTHROPODADIPLOPODA

Julidae

Trigoniulus

Millipede

7-25.2

Veri tinito

C

?lumbricinus

Paradoxsomatidae

Orthomorpha

Millipede

7-25.2

Veri tinito

C

?coarctata

CHILOPODA

Scolopendridae

Scolopendra sp.

Centipede

7-25.1

Veri tara

SPh.

INSECTA

COLLEMBOLA

<u>Collembola</u> spp.	Springtails	7-19.	<u>Potipoti</u>	S
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ODONATA

Libellulidae

<u>Pantala</u>	Dragonfly	7-5.	<u>Iva</u>	C
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cf. flavescens

<u>Diplacodes</u> sp.	Dragonfly	7-5.	<u>Iva</u>	C
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Coenagriidae

<u>Agriocnemis</u> sp.	Damselfly	7-5.	<u>Iva</u>	C
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ORTHOPTERA

Tettigonidae

<u>Conocephalus</u>	Grasshopper	7-6.	<u>Uru'apuka</u>	C
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saltator

<u>Xiphidiopsis ?lita</u>	Grasshopper	7-6.	<u>Uru'apuka</u>	C
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Phasmatidae

<u>Graeffea crouanii</u>	Coconut	7-9	<u>E'e</u>	SPh.
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Stick Insect

Blattidae

<u>Periplaneta brunner</u>	Cockroaches	7-10.	<u>Kokoroti</u>	C
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and Periplaneta spp.

<u>Platyzosteria nitida</u>	Cockroach	7-11.	<u>U'eu'e</u>	C
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Blaberidae

<u>Psycnoscelus</u>	Cockroach	7-11.	<u>U'eu'e</u>	C
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surinamensis

DERMAPTERA

Chelisochidae

<u>Chelisoches morio</u>	Earwig	7-12.	<u>Kara'unga</u>	C
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MALLOPHAGA

Menoponidae

<u>Menopon gallinae</u>	Chicken Louse	7-17.3	<u>Kutu moa</u>	C
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Philopteridae

<u>Goniocotes gallinae</u>	Chicken Louse	7-17.3	<u>Kutu moa</u>	C
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ANOPLURA

Hematopinidae

<u>Hematopinus suis</u>	Hog Louse	7-17.2	<u>Kutu puaka</u>	C
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Pediculidae

<u>Pediculus humanus</u>	Human Louse	7-17.1	<u>Kutu tangata</u>	C
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HOMOPTERA

Aphididae

Aphid spp.	Greenfly	7-20.	<u>Patapata</u>	S
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Pseudococcidae

? <u>Dismicoccus</u>	Pineapple	7-22.	<u>Miri-bug</u>	S
<u>brevipes</u>	Mealy-bug			

COLEOPTERA

Curculionidae

? <u>Cylas formicarius</u>	Sweet-potato	7-21.	<u>Tunga</u>	D
(larva)	Borer			

LEPIDOPTERA

Lepidoptera larvae	Caterpillars	7-2.	<u>Moko</u>	S
Smaller	Small Moths	7-3.	<u>Pepepepe</u>	C
Microlepidoptera				
Most large	Butterflies	7-3.	<u>Pepe</u>	S,C
Lepidoptera	and Moths			

Lepidoptera include:

Arctiidae

Utetheisia sp. 7-3. Pepe C

Noctuidae

Chasmina sp. 7-3. Pepe C

Achaea ?janata 7-3. Pepe C

Spodoptera litura 7-3 Pepe C

Mocis trifasciata 7-3, Pepe C

Hypsidae

Argina cribraria 7-3. Pepe C

Lycaenidae

Zizina otis Small Blue 7-3. Pepe C
mangoensis

Sphingidae

Gnathothlibus erotus Sphinx Moth 7-4. Iriano C
eras

Danaidae

Danaus plexippus Monarch 7-3.1 Pepe renga S
Butterfly

Nymphalidae

Hypolimnas bolina Blue Moon 7-3.2 Pepe tako S
Butterfly

DIPTERA

Culicidae

<u>Culex</u> spp.	Mosquito	7-16.1	<u>Namu vaevae roa</u>	S
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<u>Aedes</u> spp.	Mosquito	7-16.2	<u>Namu ka'ati</u>	S
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Chloropidae

<u>Cadrema</u> spp.	'Fruit fly'	7-15.	<u>Ongaonga</u>	C
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Calliphoridae

<u>Chrysomya rufifacies</u>	Blowfly	7-13.1	<u>Rango auika</u>	C
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<u>Chrysomya</u>	Blowfly	7-13.1	<u>Rango auika</u>	C
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megacephala

Other Diptera	Flies	7-13.	<u>Rango</u>	S
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SIPHONOPTERA

Ctenocephalidae

<u>Ctenophalides ?canis</u>	Dog Flea	7-17.4	<u>Kutu kuri</u>	S
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HYMENOPTERA

Evaniidae

<u>Evania</u> sp.	Ensign Wasp	7-13.	<u>Rango</u>	C
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Vespididae

<u>Polistes</u> sp.	Paper Wasp	7-13.3	<u>Rango pao</u>	C
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Sphecidae

<u>Pison</u> sp.	Mud-builder Wasp	7-14.	<u>'U'u</u>	C
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Eumenidae

2 Eumenid spp.	Potter Wasps	7-13.3	<u>Rango pao</u>	C
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Megachilidae

<u>Chalicodoma</u> sp.	Leaf-cutter Bee	7-13.3	<u>Rango pao</u>	C
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<u>Lithurgus</u> sp.	Boring Bee	7-14.	<u>'U'u</u>	C
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Apidae

<u>Apis mellifera</u>	Honey Bee	7-13.4	<u>Rango tepura</u>	C
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Formicidae

Formicidae, winged	Flying Ants	7-18.1	<u>Ro pererau</u>	S
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forms

<u>Pheidole megacephala</u>	Ant	7-18.2	<u>Ro ka'ati</u>	S
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? <u>Solenopsis</u> sp.	Fire Ant	7-18.2	<u>Ro ka'ati</u>	D
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CRUSTACEAMALACOSTRACA

STOMATOPODA

Gonodactylidae

<u>Gonodactylus</u> sp.	Mantis Shrimp	5-54.	<u>'koura'</u>	SPh.
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AMPHIPODA

Talitridae

?Talitrid sp.	Sandhopper	7-19.	<u>Potipoti</u>	D
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DECAPODA

Natantia

Alpheidae

<u>Alpheus</u> sp.	Snapping Shrimp	5-54.	<u>'koura'</u>	SPh.
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Palaemonidae

<u>Macrobrachium</u> sp.	Long-armed Prawn	5-56.	<u>Koura vai</u>	SPh.
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Stenopidae

<u>Stenopus</u> sp.	Banded Shrimp	5-54.	<u>'koura'</u>	SPh.
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Reptantia

Scyllaridae

<u>Panulirus</u> spp.	Spiny Lobsters	5-54.	<u>Koura</u>	SPh.
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<u>Ibacus</u> sp.	Spanish Lobster	5-55.	<u>Papapapa</u>	SPh.
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Porcellanidae

<u>Petrolisthes</u> sp.	Porcelain Crab	5	<u>'karai'i'</u>	SPh.
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Coenobitidae

<u>Coenobita</u> sp.	Land Hermit Crab	5-53.2	<u>Unga kura</u>	SPh.
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Smaller Coenobitids		5-53.	<u>Kakara/</u> <u>Ungaunga</u>	SPh.
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<u>Birgus latro</u>	Coconut Crab	5-53.3	<u>Unga puku'ara</u>	SPh.
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Paguridae

Larger Pagurids	Marine Hermit Crabs	5-53.	<u>Unga</u>	SPh.
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Smaller Pagurids		5-53.	<u>Ungaunga</u>	SPh.
<u>Dardanus</u> sp.	Hermit Crab	5-53.1	<u>Ungapara</u>	SPh.

Callapidae

<u>Calappa hepatica</u>	Stone Crab	5	<u>'karai'i'</u>	SPh.
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Portunidae

<u>Charybdis</u> (<u>Goniosupradens</u>) <u>erythroductyla</u>	Swimming Crab	5-39.	<u>Ti'oro</u>	SPh.
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Xanthidae

<u>Xanthias tetraodon</u>		5-38.	<u>Tiko'uru</u>	SPh.
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<u>Etisus ?splendidus</u>		5-38.	<u>Tiko'uru</u>	SPh.
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Xanthidae contd.

<u>Carpilius convexus</u>		5-37.	<u>Upaki</u>	SPh.
<u>Carpilius maculatus</u>		5-37.	<u>Upaki</u>	SPh.
<u>Atergatis ?floridus</u>	Shawl Crab	5-45.	<u>Tungerengere</u>	C,SPh.
<u>Zozymus aeneus</u>		5-43.	<u>Angatea</u>	C,SPh.
<u>Daira perlata</u>		5-44.	<u>Ku'ani'ani</u>	C,SPh.
Ocypodidae				
<u>Ocypode ?laevis</u>	Ghost Crab	5-46.	<u>Titirotai</u>	SPh.
Grapsidae				
<u>Grapsus ?albolineatus</u>		5-47.	<u>Mikia</u>	C,SPh.
<u>?tenuicrustatus</u>				
<u>?Cyclograpsus</u> sp.		5-50.	<u>Karai'i</u>	SPh.
<u>Metopograpsus</u>		5-48.	<u>Tumatumavai</u>	C,SPh.
<u>?thukuhar</u>				
<u>Pachygrapsus</u> sp.		5-49.	<u>Papaka</u>	SPh.
<u>Plagusia depressa</u>		5-41.	<u>Moka</u>	C,SPh.
<u>tuberculata</u>				
<u>Plagusia ?depressa</u>		5-40.	<u>Tuapuku</u>	C,SPh.
<u>tuberculata</u>				
<u>Percnon planissimum</u>		5-42.	<u>Toetoe</u>	C,SPh.
Gecarcinidae				
<u>Cardisoma longipes</u>	Long-legged Land Crab	5-52.	<u>Irave</u>	SPh.
<u>Cardisoma rotundum</u>	Land Crab	5-51.	<u>Tupa</u>	SPh.

ARACHNIDA

SCORPIONIDA

Scorpionid sp.	Scorpion	7-24.	<u>Tikopio</u>	S
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ARANEIDA

All Araneida	Spiders	7-23.	<u>Tukutuku ra'o nui</u>	S
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But especially:

Sparassidae

Heteropa venatoria	Giant Crab/ Wolf Spider	7-23.	<u>Tukutuku ra'o nui</u>	C
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ECHINODERMATAASTEROIDEA

PHANEROZONIA

Linckiidae

<u>Linckia laevigata</u>	Large Blue Starfish	5-7.	<u>Ma'ama'a tai</u>	S
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SPINULOSA

Acanthasteridae

<u>Acanthaster planci</u>	Crown of Thorns	5-8.	<u>Taramea</u>	S
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ECHINOIDEA

AULODONTA

Diadematidae

<u>Echinothrix ?diadema</u>	Poison Urchin	5-5.	<u>Kina vana</u>	SPh.
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<u>Diadema</u> sp.		5-5.	<u>Kina vana</u>	S
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CAMARODONTA

Echinometridae

<u>Echinometra mathaei</u>	Burrowing	5-3.	<u>Kina</u>	SPh.,C
	Urchin			

<u>Heterocentrotus</u> spp.	Slate-pencil	5-6.	<u>Atuke</u>	SPh.,C
	Urchins			

Toxpneustidae

<u>Tripneustes</u> sp.	Sea Urchin	5-4.	<u>Vana</u>	SPh.
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HOLOTHUROIDEA

DENDROCHIROTA

?Dendrochirotid sp.	Sea Cucumber	5-1.4	<u>Rori pua</u>	D
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ASPIDOCHIROTA

Holothuridae

<u>Holothuria atra</u>	Sea Cucumber	5-1.2	<u>Rori one tea</u>	SPh.
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<u>Holothuria</u>	Sea Cucumber	5-1.1	<u>Rori tai</u>	SPh.
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leucospilota

? <u>Holothuria nobilis</u>	Sea Cucumber	5-2.	<u>Ngata</u>	SPh.
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<u>Holothuria</u>	Sea Cucumber	5-1.5	<u>(Rori) kanaenae</u>	SPh.
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pervicax et al.

<u>Holothuria</u> sp.	Sea Cucumber	5-1.6	<u>(Rori) purupuru</u>	SPh.
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? <u>Actinopygia</u>	Sea Cucumber	5-1.3	<u>Rori pu'atoro</u>	SPh.
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mauritiana

CHORDATAELASMOBRANCHII

LAMNIFORMES

Carcharhinidae,

Isuriidae, and

Alopiidae

Sphyrnidae

Sphyrna sp.

Sharks

4-12.

Mango

S, P

Hammerhead
Shark

4-12.1

Mango iravaru

P

MYLIOBATIFORMES

Dasyatidae

Dasyatid sp.

Stingray

4-18.

Tamanu

P

Myliobatidae

? Aetobatus narinari

Eagle Ray

4-18.

Tamanu

P

TELEOSTOMI

MYCTOPHIFORMES

Synodontidae

Saurida gracilis

Lizard-fish

4-92

Karaea

SPh.

?et al.

ANGUILLIFORMES

Anguillidae

Anguilla spp.Fresh-water
Eels

4-97.

Tuna

S

Anguilla obscuraFresh-water
Eels

4-97.1

Tuna itiki

SPh.

Anguilla sp.Fresh-water
Eels

4-97.2

Tuna kaveu

D

Anguillidae contd.

<u>Anguilla ?megastoma</u>	Fresh-water Eels	4-97.3	<u>Tuna purepure</u>	D
Ophichthyidae				
Myrichthys maculosus	Spotted Snake-eel	4-95.1	<u>Pu'i kotuku</u>	SPh.
Muraenidae				
<u>Gymnothorax</u> <u>meleagris</u> Moray	Speckled	4-96.1	<u>Kerekere roriki</u>	SPh.
Gymnothorax spp.	Moray Eels	4-96.8	<u>Kerekere</u> <u>kutekute</u>	SPh.
? <u>Gymnothorax</u> sp.	Moray Eel	4-96.6	<u>(Kerekere) pata</u>	P
<u>Enchelynassa canina</u>	Moray Eel	4-96.4	<u>(Kerekere)</u> <u>va'aroa</u>	SPh.
<u>Echidna nebulosa</u>	Starry Moray	4-96.2	<u>Kerekere</u> <u>parakava</u>	SPh.
<u>Echidna</u> sp.	Moray Eel	4-96.5	<u>Kerekere tu'ua</u>	SPh.
? <u>Echidna</u> sp.	Moray Eel	4-96.3	<u>Kerekere va'atea</u>	D
Muraenid sp.	Moray Eel	4-96.7	<u>Kerekere raravai</u>	D
Congridae				
<u>Conger cinereus</u>	Grey Conger	4-95.	<u>Pu'i</u>	SPh.

BELONIFORMES

Belonidae

<u>Platybelone ?argalus</u> ?et al.	Needlefish	4-8.	<u>Kakukaku</u>	SPh.
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Hemirhamphidae

<u>Hemirhamphus</u> sp. et al.	Half-beaks	4-7.	<u>Miromiro</u>	SPh.
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Exocoetidae

Exocoetid spp.	Flying-fish	4-27.	<u>Maroro</u>	SPh.
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PLEURONECTIFORMES

Bothidae

Bothid spp.	Left-eye Flounders	4-89.	<u>Patiki terevare</u>	SPh.
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BERYCIFORMES

Holocentridae

<u>Holocentrus</u> spp.	Soldierfish	4-64.1	<u>Ku taraea</u>	SPh.
<u>Holocentrus spinifer</u>	Armoured Soldierfish	4-64.2	<u>Ku ta</u>	SPh.
<u>Myripristis</u> spp.	Squirrelfish	4-64.3	<u>Ku mata nui</u>	SPh.

SYNGNATHIFORMES

Aulostomidae

<u>Aulostoma valentini</u>	Trumpetfish	4-63.	<u>Anu</u>	SPh.
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Fistulariidae

<u>Fistularia petimba</u>	Cornetfish	4-63.	<u>Anu</u>	P
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MUGILIFORMES

Sphyraenidae

<u>Sphyraena</u> spp.	Barracuda	4-11.	<u>Ono</u>	P
<u>Sphyraena ?forsteri</u>	Sea-pike Barracuda	4-11.	<u>Onoono</u>	SPh.

Mugilidae

<u>?Crenimugil</u>	Warty-nosed	4-57.1	<u>Kanae va'a roa</u>	SPh.
<u>crenilabris</u>	Mullet			
<u>Neomyxus chaptalli</u>	Silvery	4-57.1	<u>Aua va'a roa</u>	SPh.
	Mullet			
<u>Mugil</u> sp.	Mullet	4-57.2	<u>Kanae va'a poto</u>	P
<u>Liza ?vaigensis</u>	Diamond-	4-58.	<u>Ka'a</u>	P
	scale Mullet			

POLYNEMIFORMES

Polynemidae

<u>Polydactylus</u>	Threadfin	4-59.	<u>Moi</u>	SPh.
<u>sexfilis</u>				

PERCIFORMES

Acanthocybiidae

<u>Acanthocybium</u>	Wahoo	4-5.	<u>Kaku</u>	SPh.
<u>solandri</u>				

Thunnidae

<u>Neothunnus</u>	Yellowfin	4-1.1	<u>A'ai otava</u>	SPh.
<u>macropterus</u>	Tuna			
<u>?Thunnus alalunga</u>	Germon	4-1.2	<u>A'ai to'everi</u>	P
<u>?Thunnus obesus</u>	Big-eye	4-1.3	<u>A'ai pirivaru</u>	P
	Tuna			
<u>?Gymnosarda nuda</u>	Smooth Tuna	4-3.	<u>Varu</u>	D

Katsuwonidae

<u>Katsuwonus pelamis</u>	Bonito	4-2.	<u>Au'opu</u>	P
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Istiophoridae and

	Swordfish,	4-6.	<u>'Akura</u>	P
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Xiphiidae

	Marlin			
<u>Istiophorus gladius</u>	Sailfish	4-6.1	<u>'Akura pererau</u>	P

Gempylidae

<u>Promethichthys</u>	Snake	4-9.	<u>Manga</u>	SPh.
<u>prometheus</u>	Mackerel			
? <u>Gempylus serpens</u>	Snake	4-9.1	<u>Manga kai'ara</u>	D
	Mackerel			

Coryphaenidae

<u>Coryphaena</u>	Dolphinfish	4-4.	<u>Ma'ima'i</u>	P
<u>?hippurus</u>				

Carangidae

<u>Decapterus</u>	Mackerel	4-25.	<u>Koperu</u>	SPh.
<u>pinnulatus</u>	Scad			
<u>Selar</u>	Big-eye	4-24.	<u>Ature</u>	SPh.
<u>crumenophthalmus</u>	Scad			
<u>Caranx melampygus</u>	Jacks	4-19.	<u>Titara</u>	SPh.
et al.				
<u>Caranx lugubris</u>	Black Jack	4-20.	<u>Ru'i</u>	SPh.
<u>Caranx ?sexfasciatus</u>	Horse-eye	4-23.	<u>Nato</u>	P
	Jack			
<u>Carangoides ferdau</u>	Spotted	4-21.	<u>Rai</u>	SPh.
and. ? <u>Trachinotus</u> sp.	Jacks			P

Apogonidae

? <u>Amia</u> or <u>Lovamia</u> sp.	Cardinalfish	4-84.	<u>O'o</u>	SPh.
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Kuhliidae

<u>Kuhlia taeniura</u>	Banded	4-60.	<u>A'ore</u>	SPh.
	Flagtail			
<u>Kuhlia ?marginata/</u>	Silver	4-61.	<u>Aputu</u>	SPh.
<u>?sandwichensis</u>	Flagtail			

Serranidae

<u>Epinephus</u>	Brown-	4-28.	<u>Karau</u>	SPh.
<u>hexagonatus</u> et al.	spotted			
	Groupers			

Epinelphidae contd.

<u>Epinelphus</u> sp.	Grouper	4-28.1	<u>Karau tapairu</u>	P
<u>Epinelphus fasciatus</u>	Scarlet	4-30.	<u>Atea</u>	SPh.
	Sea Bass			
<u>Epinelphus</u> sp.	Sea Bass	4-35.	<u>'Apuku</u>	P
<u>Variola louti</u>	Lunar-tailed	4-31.	<u>Taratara</u>	SPh.
	Rock Cod			
<u>Cephalopholis argus</u>	Blue-spotted	4-29.	<u>Ro'i</u>	SPh.
	Grouper			
? <u>Cephalopholis</u>	Flag-tailed	4-33.	<u>Papa rari</u>	P
<u>urodelus</u>	Sea Bass			
? <u>Promicrops</u>	Giant	4-28.	<u>Tonu (tarao)</u>	P
<u>lanceolatus</u>	Grouper			
Serranid sp.		4-32.	<u>Rari</u>	D
Serranid sp.		4-34.	<u>Papa</u>	D
<u>Grammistes</u>	Soapfish	4-85.	<u>Akapekape</u>	P
<u>sexlineatus</u>				
Priacanthidae				
<u>Priacanthus</u>	Red	4-65.	<u>Po nui</u>	SPh.
? <u>cruentatus</u>	Bullseye			
Lutjanidae				
<u>Lutjanus kasmira</u>	Blue-lined	4-40.	<u>Morenga</u>	P
	Sea Perch			
<u>Lutjanus monostigma</u>	Black Spot	4-40.	<u>Morenga</u>	SPh.
	Snapper	4-41.	<u>Tangao</u>	
<u>Lutjanus</u> sp. or spp.	Snappers	4-41.	<u>Tangao</u>	P
<u>Gnathodentex</u>	Gold-lined	4-38.	<u>Tavatava</u>	SPh.
<u>aureolineatus</u>	Sea Perch			
<u>Aphareus ?furcatus</u>	Jobfish	4-38.	<u>Tavatava</u>	SPh.
<u>Pterocaesio tile</u>	Tricolour	4-26.	<u>Tamanu</u>	SPh.
	Fusileer			

Lutjanidae contd.

<u>Monotaxis</u>	Large-eyed	4-43.	<u>Mu</u>	SPh.
<u>grandoculis</u>	Sea Bream			

Mullidae

<u>Mulloidichthys</u>	Bait	4-78.	<u>Koama</u>	SPh.
<u>samoensis</u>	Goatfish			
<u>Mulloidichthys</u>	Gold-banded	4-79.	<u>Takua</u>	SPh.
<u>auriflamma</u>	Goatfish			
<u>Parupeneus trifasciatus</u>				
<u>Parupeneus</u> and <u>Surmuflets</u>		4-77.	<u>Ka'uru</u>	SPh.
<u>Upeneus</u> spp.				

Pempheridae

<u>Pempheris oualensis</u>	Sweeper	4-66.	<u>Tapatai</u>	SPh.
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Kyphosidae

<u>Kyphosus</u>	Rudderfish	4-62.1	<u>Nanue tapa'uru</u>	SPh.
<u>cinearescens</u>				
<u>Kyphosus</u> sp.		4-62.2	<u>Nanue morava</u>	SPh.

Chaetodontidae

<u>Heniochus monoceros</u>	Horned	4-67.	<u>Ti'iti'i</u>	SPh.
	Coralfish			
<u>Chaetodon</u> spp.	Butterflyfish	4-67.	<u>Ti'iti'i</u>	SPh.
<u>Pomacanthodes</u>	Emperor	4-67.	<u>Ti'iti'i</u>	SPh.
<u>imperator</u> (juvenile)	Angelfish			
<u>Pomacanthodes</u>	Emperor	4-68.	<u>Kumukumu</u>	SPh.
<u>imperator</u> (adult)	Angelfish			

Pomacentridae

<u>Pomacentrus</u> sp. or spp.	Damselfish	4-81.	<u>Katoti</u>	SPh.
? <u>Abudefduf</u> sp. or spp.	Damselfish	4-82.	<u>O'u</u>	SPh.

Pomacentridae contd.

<u>Abudefduf sordidus</u>	Grey-banded Sergeant-major	4-83.	<u>Tapu'uru</u>	SPh.
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Labridae

<u>Cheilinus trilobatus</u>	Trilobed Maori Wrasse	4-53.	<u>Pa'ue'ue</u>	SPh.
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<u>Cheilio inermis</u>	Sharp-nosed Wrasse	4-49.	<u>Pa'o</u>	Sph.
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<u>Gomphosus tricolor</u>	Bird Wrasse	4-56.	<u>Takataka</u>	SPh.
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<u>Thalassoma</u>	Wrasse	4-48.	<u>Karore</u>	SPh.
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lutescens

<u>Thalassoma fuscum</u>	Fire Wrasse	4-47.1	<u>Pa'oro mutukura</u>	SPh.
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<u>Thalassoma</u>	Puzzle	4-47.2	<u>Pa'oro 'ina</u>	SPh.
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<u>umbrostigma</u>	Wrasse			
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<u>Thalassoma</u>	Purple	4-47.3	<u>Pa'oro matakiva</u>	SPh.
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<u>purpureum</u>	Wrasse			
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<u>Anampses</u>	Spotted	4-51.	<u>Arera</u>	SPh.
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<u>caeruleopunctatus</u>	Chisel-tooth Wrasse			
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<u>Anampses</u>	Blue Chisel-	4-52.	<u>Re'u</u>	SPh.
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<u>diadematus</u>	Tooth Wrasse			
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<u>Hemigymnus</u>	Thick Lips	4-54.	<u>Katiarangi</u>	SPh.
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fasciatus

<u>Halichoeres</u>	Rainbow	4-50.	<u>Pa'opa'o</u>	SPh.
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<u>trimaculatus</u> et al.	Wrasse			
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? <u>Coris</u> sp.	Comb Wrasse	4-55.	<u>Aupa</u>	P
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Scaridae

<u>Scarus</u> spp.	Parrotfish	4-44.	<u>U'u</u>	SPh.,P
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		4-45.	<u>Pakati</u>	SPh.,P
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<u>Scarus ?lepidus</u>	Multicolour Parrotfish	4-44.1	<u>U'u o kura</u>	SPh.
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Scaridae contd.

<u>?Scarus gibbus</u>	Big Blue Parrotfish	4-44.2	<u>U'u mamaringa</u>	P
<u>Calotomus spinidens</u>	Half-toothed Parrotfish	4-45.	<u>Pakati</u>	SPh.
<u>?Leptoscarus</u> <u>vaigensis</u>	Petroleum Parrotfish	4-46.	<u>Pau'u</u>	P

Cirrhitidae

<u>Cirrhites pinnulatus</u>	Handfish	4-36.	<u>Patuki</u>	SPh.
<u>Paracirrhites</u> sp.	Handfish			
<u>Paracirrhites</u> <u>?hemistictus</u>	Multicolour Handfish	4-36.1	<u>Patuki iva</u>	SPh.
<u>Paracirrhites</u> <u>arcatus</u>	Handfish	4-37.	<u>Marau'ange</u>	SPh.

Blennidae

Blennid spp.	Blennies	4-93.	<u>Panako</u>	SPh.
<u>Istiblennius</u> <u>?edentulus</u>	Blenny	4-93.1	<u>Panako ta'areva</u>	SPh.
<u>?Istiblennius</u> sp.	Blenny	4-93.3	<u>Panako avare</u>	SPh.
<u>Exallias brevis</u>	Reef Blenny	4-93.4	<u>Panako 'akau</u>	SPh.

Carapidae

<u>Carapus</u> sp.	Pearlfish	4-95.	<u>Toketoke pu'i</u>	SPh.
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Siganidae

<u>Siganus spinus</u>	Lined Rabbitfish	4-75.	<u>Maemae</u>	SPh.
<u>Siganus rostratus</u>	Spotted Rabbitfish	4-76.	<u>Morava</u>	SPh.

Zanclidae

<u>Zanclus canescens</u>	Moorish Idol	4-67.	<u>Ti'iti'i</u>	SPh.
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Acanthuridae

<u>Zebrasoma ?scopas</u>	Sailfin Tang	4-69.	<u>'Api</u>	SPh.
<u>Ctenochaetus</u>	Hair-toothed	4-69.1	<u>'Api tako</u>	SPh.
<u>striatus</u>	Tang			
? <u>C. striatus</u>	Tang	4-69.3	<u>'Api taringa</u>	SPh.
			<u>auika</u>	
? <u>Ctenochaetus</u> sp.	Tang	4-69.2	<u>'Api va'a vere</u>	SPh.
<u>Acanthurus</u> spp.	Black	4-69.1	<u>'Api tako</u>	SPh.
	Surgeonfish			
<u>Acanthurus achilles</u>	Red-spotted	4-69.4	<u>'Api tuitui</u>	SPh.
	Surgeonfish			
<u>Acanthurus olivaceus</u>	Olive	4-69.5	<u>'Api renga</u>	SPh.
	Surgeonfish			
<u>Acanthurus aliala</u>	Yellow-	4-69.5	<u>'Api renga</u>	SPh.
	spotted Tang			
<u>Acanthurus ?mata</u>	White-tailed	4-69.6	<u>'Api 'uku tea</u>	SPh.
	Surgeonfish			
<u>Acanthurus lineatus</u>	Zebra	4-69.7	<u>'Api maka'aka'a</u>	P
	Surgeonfish			
<u>Acanthurus guttatus</u>	Spotted	4-69.8	<u>'Api pua'au</u>	SPh.
	Surgeonfish			
? <u>Acanthurus</u>	Ring-tail	4-70.	<u>Parangi</u>	D
<u>fuliginosus</u>	Surgeonfish			
<u>Acanthurus</u>	Convict Tang	4-71.	<u>Tiovi</u>	SPh.
<u>triostegus</u>				
<u>Naso unicornis</u>	Brown	4-72.	<u>Ume</u>	SPh.
	Unicornfish			
<u>Naso lituratus</u>	Smooth	4-72.1	<u>Ume tuitui</u>	SPh.
	Unicornfish			

Gobiidae

Gobiid sp.	Sand Goby	4-92.	<u>Karaea</u>	SPh.
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Eleotridae

<u>Eleotris</u> sp.	Gudgeon	4-98.	<u>Kokopu</u>	SPh.
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Scorpaenidae

Scorpaenid spp.	Scorpionfish	4-91.	<u>No'u</u>	SPh.,P
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<u>Pteropterus</u> <u>antennatus</u>	Lionfish	4-90.	<u>Tatarai'au</u>	SPh.
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<u>Pterois</u> spp.	Lionfish	4-90.	<u>Tatarai'au</u>	SPh.
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Synaceiidae

? <u>Synanceichthys</u> <u>verrucosa</u>	Stonefish	4-91.	<u>No'u</u>	P
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ECHENEIFORMES

Echeneidae

Echeneid sp. or spp.	Remoras	4-13.	<u>Taritari</u>	P
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TETRODONTIFORMES

Aluteridae

? <u>Alutera scripta</u>	Leatherjacket	4-74.	<u>Karevareva</u>	P
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<u>Cantherhines</u> <u>dumerili</u>	Grey Filefish	4-73.1	<u>Kokiri pa'a</u>	SPh.
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Balistidae

<u>Rhinecanthus</u> <u>rectangulus</u>	Wedge-tailed Triggerfish	4-73.	<u>Kokiri</u>	SPh.
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<u>Rhinecanthus</u> <u>aculeatus</u>	White-barred Triggerfish	4-73.	<u>Kokiri</u>	SPh.
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<u>Pseudobalistes</u> <u>?fuscus</u>	Marbled Triggerfish	4-73.	<u>Kokiri</u>	SPh.
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? <u>Melichthys niger</u>	Black Triggerfish	4-73.2	<u>Kokiri moana</u>	P
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Balistidae contd.

<u>?Melichthys vidua</u>	White-tailed Triggerfish	4-73.3	<u>Kokiri 'uku tea</u>	D
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Ostraciidae

<u>Ostracion</u> <u>lentiginosum</u>	Multi-spotted Trunkfish	4-88.	<u>Moamoa</u>	SPh.
<u>Ostracion cubicum</u>	Yellow Boxfish	4-88.1	<u>Moamoa renga</u>	SPh.

Diodontidae

<u>Diodon hystrix</u>	Porcupine- fish	4-86.	<u>Totara</u>	SPh.
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Tetrodontidae

<u>Arothron meleagris</u>	Pufferfish	4-87.	<u>'Ue'ue taka tai</u>	SPh.
<u>Arothron</u> <u>nigropunctatus</u>	Black-spotted Pufferfish	4-87.	<u>'Ue'ue taka tai</u>	SPh.

LOPHIIFORMES

Antenariidae

<u>Antennarius</u> sp.	Anglerfish	4-91.	<u>'no'u'</u>	SPh.
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REPTILIA

CHELONIA

<u>?Chelonia</u> sp.	Turtle	4-94.	<u>'Onu</u>	D
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SQUAMATA

Scincidae

<u>Emoia cyanura</u>	Blue-tailed Skink	7-1.2	<u>Mo tukutuku</u>	SPh.
<u>Leiopisma noctua</u>	Skink	7-1.2	<u>Mo tukutuku</u>	SPh.
<u>Cryptoblepharus</u> <u>boutonii poecilopleurus</u>	Skink	7-1.2	<u>Mo tukutuku</u>	SPh.

Gekkonidae

<u>Gehyra oceanica</u>	Polynesian Gecko	7-1.1	<u>Moko karara</u>	SPh.
<u>Lepidodactylus</u> <u>lugubris</u>	Mourning Gecko	7-1.1	<u>Moko karara</u>	SPh.

AVES

PROCELLARIIFORMES

Procellariidae

<u>Puffinus pacificus</u>	Shearwater	6-18.	<u>Upoa</u>	SPh.
Procellariid spp.	Shearwaters or Petrels	6-19. 6-5.	<u>Rakoa</u> <u>Titi</u>	D D
? <u>Macronectes</u> sp.	Giant Petrel	6-21.	<u>Toroa</u>	D

PELICANIFORMES

Phaethonthidae

<u>Phaeton rubricauda</u>	Red-tailed Tropic Bird	6-3.	<u>Tavake</u>	S
<u>Phaeton lepturus</u>	White-tailed Tropic Bird	6-4.	<u>Pirake</u>	SPh.

Sulidae

? <u>Sula sula</u>	Brown Booby	6-21.	<u>Toroa</u>	D
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Fregatidae

<u>Fregata minor</u>	Frigate	6-20.	<u>Kota'a</u>	S
<u>Fregata ariel</u>	Birds			

ANSERIFORMES

Anatidae

<u>Anas superciliosa</u>	Grey Duck	6-1.	<u>Mokora</u>	S
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CICONIIFORMES

Ardeidae

<u>Egretta sacra</u>	Reef Heron	6-9.	<u>Kotuku</u>	SPh.
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GALLIFORMES

Phasianidae

<u>Gallus gallus</u>	Chicken	6-6.	<u>Moa</u>	S
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GRUIFORMES

Rallidae

<u>Porzana tabuensis</u>	Spotless Crake	6-8.	<u>Mo'omo'o</u>	D
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CHARADRIIFORMES

Charadriidae

<u>Pluvalis dominica</u>	Plover	6-10.	<u>Torea</u>	S
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Scolopacidae

<u>Heteroscelus incanus</u>	Wandering Tattler	6-11.	<u>Kuriri</u>	SPh.
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Laridae

<u>Gygis alba</u>	White Tern	6-7.	<u>Kakaia</u>	SPh.
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<u>Anous stolidus</u>	Brown Noddy	6-2.	<u>Ngoio</u>	SPh.
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<u>?Procelsterna</u> <u>cerulea</u>	Blue-grey Noddy	6-16.	<u>Kara'ura'u</u>	D
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CUCULIFORMES

Cuculidae

<u>Eudynamys taitensis</u>	Long-tailed Cuckoo	6-15.	<u>Patangaroa</u>	S
? <u>Eudynamys taitensis</u>	Long-tailed Cuckoo	6-14.	<u>Kau'a</u>	D

CORACIIFORMES

Alcedinidae

<u>Halcyon</u> <u>ruficollaris</u>	Kingfisher	6-12.	<u>Tanga'eo</u>	S
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PASSERIFORMES

Sturnidae

<u>Acridotheres tristis</u>	Indian Mynah	6-17.	<u>Manu kavamani</u>	S
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Sylviidae

<u>Acrocephalus</u> vaughani kerearako	Mangaia Reed Warbler	6-13.	<u>Kerearako</u>	S
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MAMMALIA

CHIROPTERA

<u>Pteropus</u> sp.	Flying Fox	6-22.	<u>Moa kirikiri</u>	S
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RODENTIA

Muridae

? <u>Rattus exulans</u>	Native Rat	6-23.	<u>Kiore</u>	D
<u>Rattus rattus</u>	Roof Rat	6-23.	<u>Kiore</u>	C,SPh.

CETACEA

Larger Cetaceans	Whales	4-14.	<u>To'ora</u>	S
? <u>Globiocephala</u> sp.	Small Whale or Porpoise	4-15.	<u>A'angu</u>	D
Delphinidae				
Delphinid. sp.	Dolphin	4-16.	<u>Tutu</u>	D

CARNIVORA

Canidae

<u>Canis familiaris</u>	Dog	6-28.	<u>Kuri</u>	S
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Felidae

<u>Felis domesticus</u>	Cat	6-29,	<u>Kiao</u>	S
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PERISSODACTYLA

Equidae

<u>Equus caballus</u>	Horse	6-27.	<u>'Aka'oro</u>	S
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ARTIODACTYLA

SUIFORMES

Suidae

<u>Sus scrofa</u>	Pig	6-24.	<u>Puaka</u>	S
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RUMINANTIA

Bovidae

<u>Bos taurus</u>	Cattle	6-26.	<u>Pu'atoro</u>	S
<u>Capra hircus</u>	Goat	6-25.	<u>Pu'ani'o</u>	S

Appendix 2
Mangaian Terminology for the
Parts of the Animal Body.

General/Quadruped

1.	Head	- <u>pa'uru, mimiti</u>
2.	Forehead	- <u>rae</u>
3.	Eyes (or whole face in humans)	- <u>mata</u>
4.	Nose	- <u>u'u</u>
5.	Mouth	- <u>va'a</u>
6.	Teeth	- <u>ni'o</u>
7.	Tongue	- <u>arero</u>
8.	Lips (edge of mouth)	- <u>ngutu</u>
9.	Ears (pectoral fins of fish)	- <u>taringa</u>
10.	Throat/neck	- <u>karaponga</u>
11.	Back of neck	- <u>kaki, tumua</u>
12.	Windpipe	- <u>katire'e</u>
13.	Brain	- <u>roro</u>
14.	Marrow	- <u>roro</u>
15.	Bone	- <u>ivi</u>
16.	Backbone	- <u>ivi mokotua, ivi tuara</u>
17.	Back	- <u>tuara, mokotua</u>
18.	Body	- <u>kopapa</u>
19.	Sides	- <u>kaokao</u>
20.	Ribs	- <u>tara kaokao, ivi kaokao</u>
21.	Belly	- <u>kopu</u>
22.	Heart	- <u>puku'atu</u>

Appendix 3

The Traditional Mangaian Calendar

The traditional calendar of Mangaia traces the nights of the lunar month, the arapo. An appreciation of the arapo was formerly of much greater importance in determining appropriate activities (e.g. in picking nights for fishing or crab hunting) than is now the case. The following Mangaian arapo were recorded by Gill. (1876a:318-9):

IN THE WEST

1. Iro Sacred to Iro,
patron of thieves.
Favourable for thieving.
2. Oata = shadow, i.e. moon
seen in shadow.
Sprats arrive
during these
3. Amiama three days in
4. Amiama- Feb. Failing
akaoti that ,expect
i.e. Last them the
Amiama same days in
5. Tamatea March.
6. Tamatea-akaoti i.e.
Last Tamatea.
7. Korekore

IN THE EAST

16. Oturu
17. Rakau
18. Rakau-roto, i.e. Second Rakau
19. Rakau-akaoti, i.e. Last Rakau
20. Korekore
21. Korekore-roto, i.e. Second
Korekore
22. Korekore-akaoti, i.e. Last
Korekore
23. Tangaroa, Sacred to
Tangaroa
24. Tangaroa-roto, Second night
sacred to Tangaroa
25. Tangaroa-akaoti, Last night
sacred to Tangaroa
26. O Tane, Sacred to Tane.

- | | |
|--|--|
| <p>8. ☽ <u>Korekore-akaoti</u> i.e.
Last Korekore.</p> <p>9. <u>O Vari</u> (i.e. <u>Vari-ma-te</u>
<u>takere</u> = the Originator-
of-all-things)</p> <p>10. <u>Una</u></p> <p>11. <u>Maaru</u></p> <p>12. <u>Ua</u></p> <p>13. <u>E atua</u> = A god</p> <p>14. <u>O Tu</u> i.e. Tu-metua, the
last made of the major
gods.</p> | <p>27. <u>Rongonui</u>, i.e. Rongo the
Great</p> <p>The 26th. and 27th. were
fete nights - Rongo and Tane
being patrons of their
dances in time of peace.</p> <p>28. <u>Mauri</u> = ghost</p> <p>29. <u>Omutu</u> = ended</p> <p>30. ● <u>Otire o Avaiki</u>
(abbreviated "<u>Otireo</u>") =
Lost in the depths of Avaiki.</p> |
|--|--|

15. ○ Marangi, or Full-moon

.....

From the seventeenth to the twenty-eighth the nights were considered favourable for fishing; also for catching the fish of the gods, i.e. men. In other words, these were murder nights. Tangaroa (23rd.) and O Tane (26th.) and Rongo-nui (27th.) were the three "most lucky" for this cruel purpose.

There are many variant listings of arapo from the Southern Cook Islands. Very few Manganians are now able to give a complete account of the nights of the lunar month. As one further example, I offer a Rarotongan listing, which was familiar to several of my Mangaian informants. (It seems to be based upon a lunar calendar published in the Cook Island Catholic church journal Torea Katorika in Nov. 1931.)

1. Tiroe - New Moon
2. Iro iti - Few fish.
3. Oata - Moon in shadow. Night of fish.
4. Amiama ta'i - Begin to plant banana and other foods.
5. Roto amiama - Fishing night.
6. 'Akaoti amiama - Fishing night.
7. Korekore ta'i - Plant sweet potato.
8. 'Akaoti korekore
9. Tamatea - Fishing night.
10. Una - No fish. Fish are hiding.
11. Rapu - No fish.
12. Ma'aru - No fish. Cultivate banana.
13. Ua - Night of fish.
14. Maitu - Maito (Surgeonfish) active. Fishing night.
15. Marangi - Plant coconut and melon. Night of fish.
16. Mai - Night of fish.
17. Turu - Night of fish. Tupa crabs out.
18. Rakau ta'i
19. Rakau roto - No fishing. Ghostly lights in sea.
20. Rakau 'akaoti - Ghostly lights on the hills.
21. Korekore ta'i
22. Korekore roto - No fish.
23. Korekore 'akaoti - No fishing. Cultivate sweet potato.
24. Tangaroa ta'i - Cultivate banana.
25. Tangaroa roto - Cultivate banana and sweet potato.
26. Tangaroa 'akaoti - Cultivate banana and sweet potato.
27. Tane - Night of fish. Do not plant banana. Plant sweet potato,

yam, manioc, and taro.

28. Rongo nui - Night of fish. Plant sweet potato and dry land taro.
29. Mauri
30. Motu - End of nights.

The Manganian year was, traditionally, divided into thirteen 'months'. These divisions have now been totally abandoned in favour of the twelve months of the western calendar, first introduced by the missionaries. In any case, according to Gill's information (1876a:317), knowledge of the traditional annual calendar...

....belonged to the kings, as they alone fixed the feasts in honour of the gods and all public spectacles. For others to dare to keep the calendar was a sin against the gods, to be punished with hydrocele.

(Gill's 'kings' are the high priests of Rongo.)

However, Gill did obtain an account of the traditional divisions of the year (1876a:316-7) which clearly reflects Manganian knowledge of the natural world.

EREU; OR SUMMMER

(Rain, Heat and Plenty)

1. Akau Breadfruit appears chestnut and other trees in blossom. This month is also known as "the time of beautiful cocoa-nut leaves". Akau extends from the middle of December to the middle of January.

2. Otunga. Breadfruit and chestnut trees covered with

PARORO ,OR WINTER

(Drought, Cold and. Scarcity)

1. Paroro Cold south winds, withering up the wild vines everywhere.
2. Manu. Incubation of birds. The woodpecker (That is, the kingfisher, tanga'eo - C.C.) bores the dead cocoa-nut for a nest. The titi bores the side of the mountain. Coral-tree in blossom. Warrior spirits

- fruit but not ripe. Sprats arrive. Hills covered reeds in blossom.
3. Kautua or "katua a kerekere"= "trail of the eel". The soil is everywhere furrowed with water, as though traversed by eels. Time of floods.
4. Akamakuru. Some breadfruit and chestnuts fall unripe, worm-eaten. So, too, some brave men are sure to die prematurely this moon. Hurricane month (end of March).
5. Muriala or "ruru anga kakao", i.e. the reed blossoms are shed upon the hills by a late blow.
6. Uringa or "dead". The leaves, etc. of the yam, arrowroot, etc., etc., fall
7. Miringa or "finishing up" (of the food of ereu, or summer season).
- take their departure from the with earth.
3. Pipiri. Muffled up inside the house, on account of the cold.
4. Kaunuunu. Papaka, or land-crab comes out of its hiding-place to feed, and is easily caught. Also called "karaii" or "crab season".
5. Ma'u. Spring up. All tuberous roots in the soil spring into life. Also said – "kua tupu te anau kai" = "all plants in leaf".
6. Vaeta. Trees, stones, bush everywhere covered with the vines of the wild yam; the o'e, or bitter yam; maraurau, or sweet yarn, etc., etc. Native arrowroot and "teve" roots are luxuriant. The year ends about the middle of December.

Appendix 4 Some Animal Metaphors

There are many Manganian expressions which relate human beings and their actions to appearances and actions in the animal world. Perhaps the simplest of such metaphors are based upon direct physical comparisons. Consider, for instance, mildly abusive personal epithets such as:

Va'a karau/va'a 'aka'oro - Grouper mouth/horse mouth - i.e. 'You have a big mouth'. The groupers, Epinelfidae, have jaws capable of considerable extension.

Va'a kokiri - Triggerfish mouth - Applicable to someone with markedly angular lips or scars about the mouth. The mouths of Balistidae are small, angular, and beak-like.

Ni'o pakati - Parrotfish teeth - Applicable to a person with projecting teeth. The Scaridae have prominent beaks.

Pa'uru panako - Blenny head - Suggests a large, squarish head.

Pa'uru ngau - Sea slug head — Suggests a large, rounded head.

The insult 'Puaka!' - 'Pig!' - is more generalised, seemingly implying both physical and behavioural comparison. One suspects that this was also the case with the abusive 'Iro' - 'Maggot' - recorded by Gill (1876a:33). Maggots are seen as both physically unpleasant and potentially destructive of food. In the case of the pig, since this was an introduced animal, European attitudes may have shaped Manganian ideas concerning it. However, 'Puaka' is used as an insult in other parts of the

Southern Cook Islands where pigs were kept in pre-contact times, and this insult is, probably, traditional.

Physical appearance can suggest a more general state. Thus:

Kiore ma'u'u/moa ma'u'u - Wet rat/wet chicken - Someone who is bedraggled or woebegone - a loser. This metaphor is, of course derived from the pathetic appearance of a rat or chicken soaked by rain.

Particular physical features of animals may be positively evaluated. For instance, rats, known to have excellent teeth, are the traditional recipients of children's appeals for new, strong, teeth at the loss of their milk dentition. Some of my informants recalled the tooth-loss charm:

Kiore, kiore e 'omai teta'i ni'o 'ou noku.

Rat, rat, give me a new tooth (of mine).

Comparisons between animal and human behaviour offer an even richer source of metaphor. There are a number of Manganian personal epithets based upon behavioural comparison. For example:

Namu - Mosquito - Applied to a person who uses others without making return, as the mosquito takes without giving.

Kiore - Rat - An insult with some implication of cowardice. Rats scatter in fear when their feeding places are approached.

Va'a kerearako - Reed Warbler mouth - Used of overly loquacious persons. The kerearako are known as 'noisy birds'. Their insistent chirring and warbling is often heard in the trees and shrubbery.

Kuri vera - Hot dog - Refers to an impetuous, hot-headed person, who is compared to an over-excited dog.

Comparisons may be made with kuri (dog) or kotuku (heron) in connection with improper meal behaviour, specifically the act of looking intently at good pieces of food that others are eating rather than concentrating on your own portion. This kind of action is known as 'kakaro manga' - 'looking at food' - and is compared to the behaviour of a dog waiting to seize scraps, or to the attitude of a heron as it cranes its neck searching for small fish.

Kiao kai moa - A cat that eats chickens - A thief. This expression apparently came into existence in the latter half of the last century. The first, accidentally introduced, cats were acutely disliked, and were hunted down because of their predations upon chickens.

There is a proverbial development of the expression:

'Ko te tinana kai moa, ka kai rai tona punua i te moa.'

'The mother eats chickens, the young will eat chickens too.'

This refers to inherited bad habits. This proverb is used in a letter written by John Trego Ariki, 'King of Mangaia', (Trego, 1909), in which he urges the removal from office of those left in charge of the island administration at the departure of Mangaia's first Resident Agent, Major Large. Trego was much opposed to Large, and implies that the local officials have been corrupted by the Major's influence, becoming kiao kai moa in their own right. A Rarotongan version of the proverb speaks of a pig (puaka) that eats chickens. This may be the older form.

Metaphors of animal behaviour may simply constitute a neutral description of a particular state. Thus:

Moemoe a panako - Sleep like a blenny - simply implies a wariness or

watchfulness. The apparently immobile fish, resting in shallow pools, waiting for food on the rocks, will whisk away at great speed if approached incautiously.

Alternatively, as we have seen, there may be strong moral implications in the behavioural metaphor. With the greedy mosquito and thieving cat these are negative. But animal behaviour can also represent an ideal. For instance, consider the saying:

'Ta'i ake kopuku kana e kai ai te atea.'

'The orange rock cod feed around one coral head.'

The action of the fish, in coming together into large feeding groups, is used to suggest the value of group co-operation among men. Metaphorical references to the powerful and potentially destructive sharks (mango), have ranged from the heroic to the demonic, from images of successful warriors to representations of the powers of evil. Their strength and aggressive vitality can be viewed both in positive and negative lights.

Some figurative expressions relating to animals directly reflect human interaction with them. Certain physical qualities may be emphasised in such contexts. A stubborn or intransigent person can be compared to an ungakoa a tube-dwelling marine mollusc, which resists the efforts of sea-food collectors to lever it from its secure home. Similar intransigence is encapsulated in the expression:

Karikao pao ngata - The Astraea rhodostoma shellfish that is difficult to break. Roughly equivalent to 'A tough nut to crack', it may be applied to people or situations. The shell of the karikao is exceptionally difficult to crack in attempting to reach the edible flesh.

I heard it remarked that, as far as the Cook Islands Party government (in power at the time of fieldwork) were concerned, most Mंगाians were karikao pao ngata, persistent in their opposition.

The ritual formula associated with the coming to power of a new kavana (major district chief) focuses on the reaction of animals and plants to human interference, creating as subtle metaphor of the relations between a chief and the people of his district.

<u>'Auraka te mo'omo'o ia rere</u>	'Do not make the Spotless Crake fly
<u>Auraka te tapou o te koka ia tuturu</u>	Do not make the banana sap flow
<u>Auraka te rango ia vu'u.</u>	Do not make the wasp buzz.'

The Spotless Crake spends much of its time amongst the undergrowth surrounding the taro swamps. It seldom flies except when forced out of its habitat by human incursions. The injunction concerning it implies that the kavana should respect the rights of those who work land within his district, and not force them away. The running sap of the banana plant is compared to the tears of the dispossessed. Wasps buzz when their nest is destroyed, and the people will cry out in discontent if forced from their lands and dwellings. The overall message is of the kavana's responsibility towards the less powerful. (The version of the formula given here is that provided by Ivi'iti 'Aerepo of Tamarua. An older variant may be found in Gill, 1894:376.)

Another example of power relations being represented in terms of man-animal interactions is to be found in the fish/victim imagery discussed in Ch.10.

One particular human use of an animal, the eating of rats, is a focus of very strong feelings among present-day Mंगाians. The epithet 'kai kiore' - 'rat eater' - is considered particularly offensive, especially when used as a jibe by people of other islands. Probably because, unlike other Southern Group islands, it lacked pigs in the pre-contact period, Mंगाia seems to have been the only island in the Southern Cooks where rats were a major traditional food resource. Despite the revulsion felt by modern Mंगाians, rats were once a highly esteemed food. The term 'tatanga kiore', 'morcel of rat', may still be used to refer to a short, pithy tale, suggesting something small but of excellence. As noted in Ch.8, Mंगाian concern about the 'correctness' of rat-eating began soon after missionary contact. Now there is a sense of shame ('akama) over this ancestral custom.

The mid-nineteenth century speeches of Mंगाian native pastors, recorded by W. Wyatt Gill, are rich in instances of animal metaphor used to point-up Christian teachings. Traditional knowledge of the natural environment is turned to the interpretation of the new religious ideology.

In some cases, dangerous or destructive animals are adopted as symbols of evil or sin.

1876b:273 The poison of the crab angatea, Zozymus aeneus
potentially deadly to man, is compared to deadly sin.

1876b:153 The clearing away of leaves from the base of sugarcane

to prevent infestation by the beetle larva tunga, is treated as a metaphor of the weeding out of evil habits, the 'tunga worm that never dies, but gnaws on forever'.

1876b:138 A shark taking fish close to the reef and depriving fishermen of their catch is presented as an image of Satan snatching at the souls of men.

Light and dark, white and black, contrasts are used to express the 'good'/'evil', Christian/pagan opposition.

1876b:129 The colour change that occurs in the development of surgeonfishes, e.g. Ctenochaetus striatus:

<u>pio</u>	—————→	<u>para'a</u> and ' <u>api</u>
white/transparent		black/brown

is employed as a metaphor of the decline into sin, of backsliding from Christian values.

1876b:138 The tern kakaia, Gygis alba, is made a symbol of hypocrisy. When the brilliant white feathers are plucked away, a black skin is revealed. So, it is implied, 'godliness' can conceal inner corruption.

1894:374 The sphinx moth iriano, Gnathothlibus erotus, flying against the light as if to extinguish it, is compared to evil, foreign customs attempting to extinguish the light of the new religion.

1876b:135-6 Man is compared to the shearwater or petrel titi, which conceals itself in a dark hole or cave. Jesus is presented as the hunter who attempts to call the birds out into the light.

A highly-charged light/dark contrast existed in pre-Christian Manganian thought, for instance, in the distinction between the everyday world of

light , the ao, and the dark and dangerous underworld of night, the po. It seems that very dark colouring could imply a link with the world of death (as in the case of the mo'omo'o, see Ch. 8). The Christian symbolism of light and dark could be seen as a development upon, rather than in conflict with, these indigenous conceptions.

Other metaphors relate to the desirability and elusiveness of Christian salvation.

1876b:136 The hole of the land crab tupa, Cardisoma sp., in which it finds safety, is compared to the means of grace, a refuge of the soul.

1876b:123 Men feeding upon god, the tree of life, are compared to the caterpillars which feed upon the Erythrina tree (ngatae) but never destroy it.

1894:374 The convert is enjoined to cling to Christ like the cleaving together of the two halves of the bivalve shellfish ka'i, Asaphis violescens, which can only be prized open with effort, and (1894:375) to cling to the cross like flying foxes (moa kirikiri) assembling on a favourite roosting tree.

1876b:134 A traditional expression of exultation, 'Kia poi a pirake tatou' - 'We soar like White-tailed Tropic Birds' - is given a Christian interpretation, being taken to suggest a seeking after heaven. The tropic birds are spectacular aerobatic fliers.

1894:378 The elusiveness of salvation is compared to a slippery eel evading the grip.

These few examples reveal the potential for abstraction in Manganian animal imagery.

Appendix 5.
Some Further Theoretical and Methodological
Considerations.

Variation in Mangaian Animal Categorisation and Terminology:

I have acknowledged, in Ch. 1, that the account of Mangaian animal categorisation and terminology provided in this thesis is essentially compound, being derived from the summation of the individual knowledges of many informants, and that the variation relating to different individual competences or to factors of context was not a primary object of my investigations. However, in the course of the thesis, variations in the usage of terminology and of category formulation have by no means been concealed. Some of the complexities relating to different appreciations of the extension of the most inclusive animal categories ('manu', 'manumanu', 'mangaika', etc.) have been discussed in Ch.3. In the subsequent chapters many references have been made to differences in identifications and in the extensions accorded to particular category terms. The present purpose is simply to indicate some of the possible social dimensions of the variation described. This reflects on concerns of such researchers as Hays (1974, 1976), Gardner (1976) and Ellen (1979) but can only be seen as an outline sketch of an area of inquiry which requires much more detailed investigation.

Among the informant characteristics which must be considered are:

Age and Sex:-

Knowledge of animals and animal vocabulary is built up gradually in the course of Manganian life, the expansion of this knowledge being encouraged both by growing experience of the natural environment and by the expansion of contacts with other knowledgeable individuals. Household and compound are the basis of earliest experience of the animal world. Not only are there the compound domesticates and the constant stream of small-life, but also a considerable variety of food animals, particularly fish, regularly introduced into the home. From the identifications of those living on the compound a basic vocabulary for commoner species is built up. Experience of the animal world is soon enlarged by exploration of the village and its bordering areas. Around the lower-level sub-villages of Oneroa I have seen children under three, investigating the littoral, searching for shellfish, with older companions. Clearly, older children can be not unimportant contributors to the growing animal vocabulary.

Though, as mentioned in Ch.7, lizard 'fishing' has been an occasional children's pastime, their interest in the island's small-life does not, generally, seem to be higher than that of the adults, there being no indication of special knowledge in this area. Rather, children's interests tend to lie with the minor food animals which adults tend to neglect, and to some extent with decorative shells. The fishing of gudgeon (kokopu, Ch.4-98.) has long been associated with boys. Children of both sexes can be seen attempting to noose fresh-water prawns (koura vai, Ch.5-56.) or gathering nerites (i'i, Ch.5-13) from the coastal rocks. From about three upwards they do, of course, co-operate in women's collecting activities. Consequently, both female and male Mangaians come to adulthood reasonably knowledgeable in the 'things of tautai va'ine' (see Ch.5). While there is a tendency for women to be rather better informed about

some echinoderms and molluscs, and more confident and competent in the identification of such creatures, their vocabulary in this field is not appreciably richer than that of adult men.

On the other hand, the adult male fish vocabulary is, generally, richer than that of women. This is evidently connected with the male specialisation towards true fishing in late boyhood and early adolescence, and with the all-male nature of ocean canoe-fishing. The most extensive lists of animals recorded were those of experienced fishermen between forty and seventy years of age.

Old age may, of course, bring failures of memory and difficulties of information processing which limit the discoverable knowledge of animals. However, I had several very clear-minded informants in their seventies and eighties who could recall the period when there was a greater dependence upon indigenous animal foods and when some creatures were sought after which are now seldom seen. They spoke, for instance of the taking of the small crustacean 'ea'ea' (Ch.5-57.). Many Mंगाians under thirty have never heard of this animal, let alone fished for it.

It has been suggested (e.g. see Dougherty 1978:70-75) that in societies with a high degree of functional interaction with the natural environment the first learned folk biological category terms will tend to be those of generic level (using Berlin's rank terminology), followed by the acquisition in one phase of life-forms, folk specifics, and unique beginner. My limited data on Mंगाian children does indicate the early acquisition of considerable numbers of generics, i.e. category terms listed in my main number sequence. However, 'manu' and 'mangaika', which may be seen as life-form terms, are also early. I have heard children under four applying them at least to the more typical category members. Their refinement must take several years. The case of 'mangaika' is probably

complicated by its use as a food category term. Specifics, corresponding to the compound lexemes of my secondary sequence, undoubtedly do belong to a later phase of learning, particularly in respect of fish terminology. There, as one might expect, it is only the experienced fishermen who have mastered anything like the full set of terms. However, children may produce their own 'specifics', compound lexemes derived from the descriptive qualification of a term known to apply to a creature similar, but not identical with the animal under discussion. For instance, consider 'i'i taratara', 'spiky i'i', applied by children to the periwinkle known to adults as 'avare oronga' (Ch.5-14.). Children are very familiar with the commoner i'i, the nerites, whose habitat the periwinkle shares. Where vocabulary is limited, the reference of known terms is often expanded. I found a tendency among children and younger women to identify the grouper known to fishermen as 'ro'i' as 'karau'. The 'karau' is the most familiar of the rock cod or grouper grouping.

It might also be noted that since the more extended life-stage sequences are usually those of fish, particularly ocean fish, a detailed knowledge of these is usually an adult male achievement.

Status, Village of Residence, and Kinship Background:-

Mangaians assume no necessary relationship between chieftainship and special knowledge of the natural world. The special expertise of the present-day aronga mana is supposed, rather, to lie in matters of the land and of genealogy. However, those among them also considered tumu korero, experts in tradition, were recommended as sources for information on older fishing and hunting practices. But, in everyday matters of identification and natural historical knowledge deference is usually given to the practicing expert, the skilled fisherman, collector or

hunter. Ascribed differences of rank do not greatly affect the pattern of everyday life. As it happens, the best-known fisherman of Oneroa village does belong to the lowest rank of the aronga mana.

There are minor dialectal differences between Mangaia's three villages. These may be reflected in vocabulary relating to animals. For example, the term 'raumi'i' for crabs of genus Carpilius was recorded only from Tamarua village (Oneroan – 'upaki') while the term 'koki' for ghost crabs is found in Ivirua village (Oneroan – 'titirotai'). Since the original villages seem to have concentrated different tribal groupings, the very small dialectal differences may be tribal in origin. Naturally, families and individuals have moved from village to village. A full study in the variation of animal terminology would require a close examination of individual's kinship backgrounds.

Language Abilities, Education and Travel:-

As noted, the majority of Mangaians are bilingual, with English as their second language. They are also familiar with other Cook Is. dialects, particularly the dominant Rarotongan. I have commented on some language influences in Ch. 3. With the progressive development of schooling facilities, those most thoroughly versed in English and most exposed to European natural history teaching are, on the whole, those under forty (though individual language skills make for considerable differences even in this group). But, it must also be recalled that Mangaians of any age are likely to have spent periods on Rarotonga, or, indeed, in New Zealand. The sparseness of the 20 to 45 age-group in the population pyramid (Figure 3.) is an indicator of the working migration. Those returning are another factor in the general pressure of acculturation.

Those most versed in English categorisation show a tendency to attempt to equate the upper order categories of Manganian with those of their other language. Western natural history teaching may also contribute to the scepticism expressed concerning some of the longer life-stage sequences (which take in a number of species), with revision of the acceptable limits on the transformations of a natural kind. But schooling does not always relate in detail to the natural world of everyday practical action and, in fact, Manganian learning about the real world of animals in their immediate environment appears to have been remarkably little affected by school experience. The working migration can also have some less predictable effects. I discovered some younger men who, in the absence of fathers and uncles, had been acquiring fish lore directly from men of the grandparental generation. They reproduced some views, for example relating to the development of swordfish from half-beak (Ch.4-6.) which I would normally have thought of as those of older men. For the student of informant variability there is much to be learned of the networks of information within the community.

Formal Tests in Establishing Categorisation

When arguing for the existence of covert categories in folk taxonomy Berlin, Breedlove, and Raven (1968) proposed some experimental methods for the testing of their hypothesis. Two of these, the construction of 'folk keys' and the 'paired comparisons' procedure (Berlin, Breedlove, and Raven, 1968:293-4) are directed towards the discovery of components of meaning or key conceptual dimensions. Their application raises certain of the now familiar problems of componential analysis and of the relation of identification keys to the actual processes of categorisation. However, the other techniques of slip-sorting and triads-testing are more directly concerned with the general assessment of similarity. The slip-sorting procedures require subjects to place in separate groups slips of paper inscribed with different category names in response to a question of the type 'Which names group with one another?'. In the triads-test the subject specifies which is the most different of a set of three items. Repeating this for all logical triads of a total set of items to be considered it is possible to arrive at a measure of the similarity of each term to all others of the complete set. Both procedures can provide data suggestive of covert groupings at various levels. Commenting on the sorting task, Berlin and associates (1968:293) write;

We found that....subgrouping of closely semantically related items within the same contrast set is easily accomplished by trained informants.

The mention of trained informants raises questions which the authors themselves take up in a footnote (Berlin, Breedlove and Raven, 1968: 298):

There are those who look askance at the reliance on highly trained native assistants for fear that their training somehow affects the validity of the results. We are aware of these problems and do not take them lightly. However, without such training an informant will be unable to make available to the investigator many of his native intuitions about his own culture.....

There is always the lingering question of how much the responses revealed in the newly learned test 'game' really reflect the responses exemplified in the everyday 'games' of categorisation. C.H. Brown, expressing doubts as to the reality of covert categories speaks critically of the use of the triads-test:

Such tests often present informants with culturally irrelevant options coercing them to sort items together which they rarely, if ever, group together on an ordinary day to day basis.
(Brown, 1974:327)

Whether or not such basic criticism is accepted, there are practical limitations to the testing procedures as applied by Berlin and others. These include the need for literate or semi-literate subjects and the time-consuming nature of larger-scale triads-testing on any substantial sample of subjects.

Category terms on paper slips can, of course, be replaced for testing by actual objects or representations of them. This is, on the whole, rather easier for the ethnobotanist than the ethriozoologist. However, Ellen (1979:351-2) has used picture cards of animals to effect in sorting tasks with Nualu informants. Yet, even with photographs there may be difficulties. Deregowski and Serpell (1971) report differences in the sorting ability of Zambian children when asked to sort models of animals and when sorting photographs of the models.

Psychological experimenters have, of course, performed other forms of experiment in the investigation of the structuring of Western animal categories in semantic memory. But, there has been considerable reliance on the use of numerical scales for subjects' assessments of similarity/semantic distance. Rips, Shoben, and Smith (1973) in their examination of mammal and bird domains, asked for terms to be graded 1 to 4 according to their 'degree of relatedness'. Similar grading procedures have been used in category-typicality experiments (e.g. see Rosch, 1975). These techniques demand certain skills in the interpretation of numerical scales. They are clearly not ideal cross-cultural tools. On the other hand, sentence substitution techniques and free association techniques have shown themselves amenable to the study of at least the broader aspects of classification on a cross-cultural basis (Cole, Gay, Glick and Sharp, 1971:65-78).

Obvious advantages of testing procedures are their reproducibility, the statistical support they give to what may be seen as intuitional interpretations, and the provision of data which permits the construction of detailed similarity-measure based models. However, I have not attempted to provide test data in this thesis. There are two basic reasons for this omission. The first was a genuine desire to adhere to the 'culturally relevant', to look at not the totality of a classificatory ability in relation to some wide-ranging test situation but at the classificatory ability made meaningful in everyday situations and conversation. Though recognising the distorting factor of myself as investigator, I am confident that the judgements of category membership and category relatedness which passed from informants to myself, or between informants, had a real explanatory value to them. My second reason for not providing test data is that, essentially, I feel that satisfactory testing procedures would themselves constitute a separate study programme. Some trial tests

were carried out. Alternative sorts using shellfish names and actual shells, did reveal some differences, the shell tests showing a greater concentration on pure morphological features. Some of my oldest informants were not entirely happy with the use of name slips in sorts. Clearly, a full test programme should incorporate both slip and object or representation (?picture) sorting and triads-test procedures. Since well-schooled subjects showed themselves quite capable of using number scales for grading (twelve performed a category-typicality experiment for me, grading mangaika, it might be possible to gather other data for comparison in this manner. The time and facilities available to me did not allow for the mounting of any extensive test procedures. In view of my doubts about the significance of the test data from my trial procedures presentation of any of it would be no more than a rather doubtful sign of empiricist good faith.

In the absence of test data, it would perhaps be useful to list the major factors I have used in determining the covert groupings indicated in the body of the thesis. These are:

1. Persistent direct indication of such groupings by Mंगाians.

Informants frequently used one particular very familiar category as a focus in referring to some middle-order grouping (e.g. 'the family of the pa'oro' the wrasses) and would otherwise actively assert the relatedness of certain groups.

2. Persistent assertion of the similarity of two organisms to each other, or of two organisms to a third. Mंगाian descriptions of animals so often incorporate a comparison to another creature that a set of similarity assertions is soon accumulated.
3. Listing clusters. Examinations of the lists of animals provided by different informants confirmed a tendency for short series of the same terms to appear together (e.g. for 'torea' to appear immediately

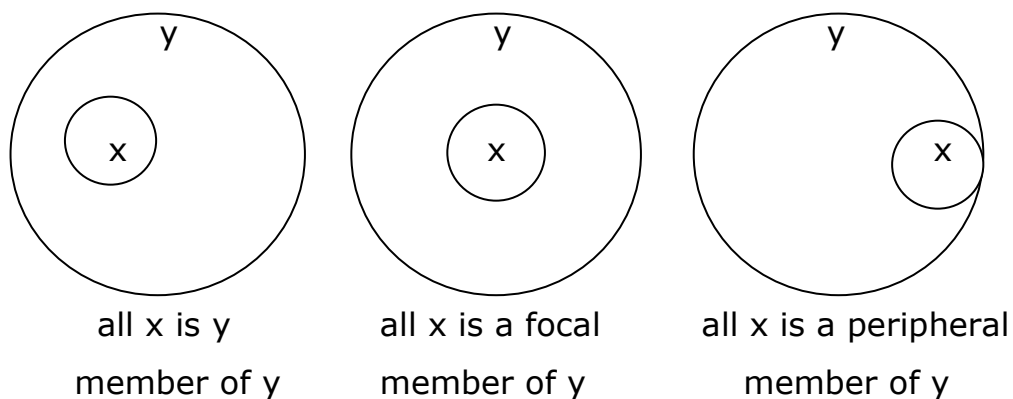
before 'kuriri' or vice versa). Groups which are otherwise asserted as similar tend to re-occur. Not unpredictably, there seems to be a similarity factor involved in moving from one term to another. This may be an area for further investigation.

4. Variant identifications and mis-identifications. When informants varied in their identifications of an animal the options proposed generally constituted a small set, the terms concerned being agreed by all to refer to organisms similar or closely related. There is little doubt that wandering tattler and snipe compose a small covert grouping when the terms 'torea' and 'kuriri' are so often interchanged. Similarly, it is evident that the snappers morenga, tangao and angamea are viewed as closely related when some informants regard them as different stages in a life-stage sequence. Hays (1976) has argued in detail the case for treating the pattern of variant identification as a method of identifying covert categories. Informants' 'Is it an x or is it a y?' musings can provide similar data. Bulmer has also made use of 'confusions, errors, or disagreements' in assessing category relations (Bulmer, Menzies, and Parker, 1975; 275.)

A Note Concerning Methods of Representation

In this thesis I have avoided the use of taxonomic representation of category relationships as much because of the theoretical difficulties that taxonomic assumptions can induce as any actual problem of construction. There are, of course, other alternatives than the one adopted here.

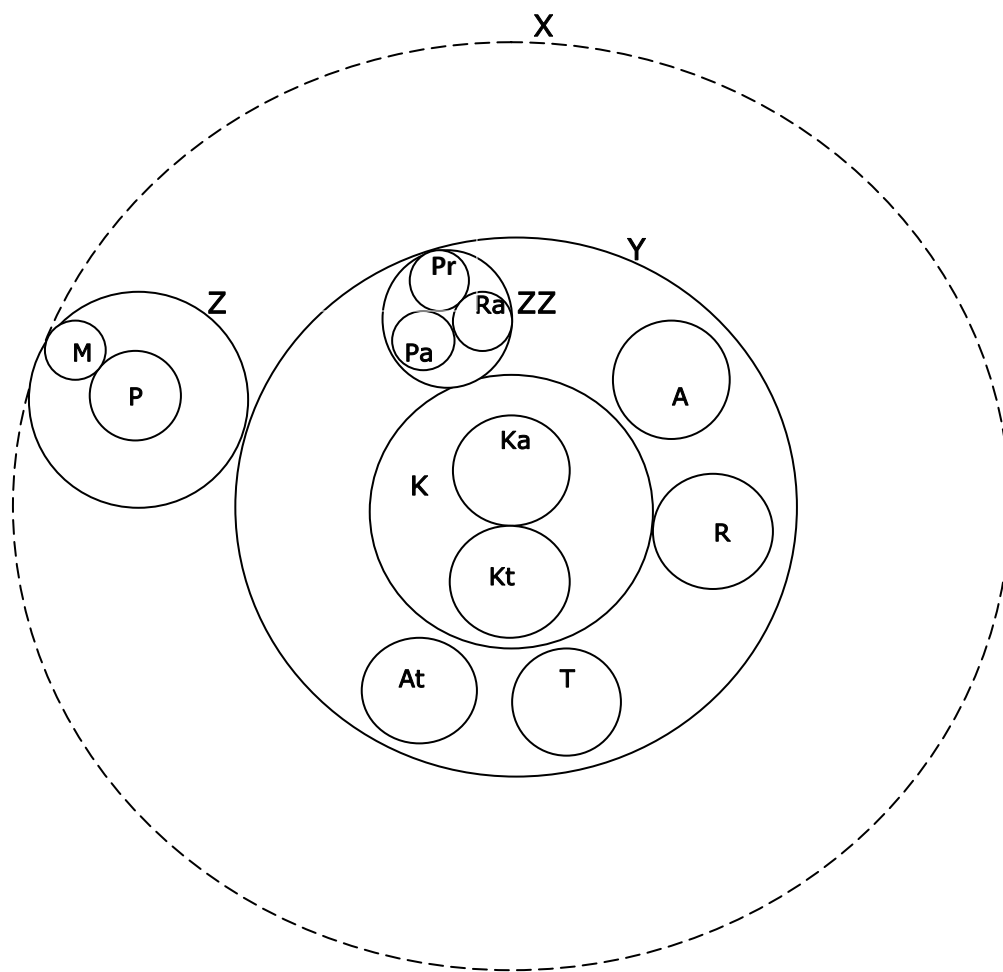
Venn diagrams, for instance, have a long history in the representation of class relationships. Like taxonomy, they do have the great benefit of clarity and immediate interpretability. They have another great advantage in the ease with which they represent category overlap. But, their set-theoretic basis does present some of the same problems that are encountered with standard taxonomies. They do not, for example, lend themselves readily to the representation of non-transitive relationships. One interesting adaptation of the Venn diagram is that proposed by Gardner (1976:453). It is his suggestion that the focality or peripherality of one class within another should be represented graphically thus:



This moves the Venn diagram in the direction of true spatial models. Semantic network models have, to some extent, been

discussed in Ch.11 when looking at taxonomic models as a particular case of this form. Some merging with spatial models was also noted there. Similarity-distance models frequently appear in network form. Broader semantic network modelling of particular ethno-biological domains has been a feature of the work of certain French researchers, particularly Friedberg (e.g. Friedberg, 1970). Her extensive diagrammatic representations show multiple linkages of similarity which unite not only plants of particular groups but create bonds between the larger groupings, specifying species which act as 'bridges' between broad categories. With additional network lines indicating factors of differentiation, the diagrams provide a broad and complex image of category relationships which goes well beyond the taxonomic relations also indicated.

My own choice of representation is less ambitious. In it, I sought to find some of the representational economy of taxonomy without endorsing implications of the taxonomic model, which did actual violence to Manganian conceptions as I understood them. The broader category relationships I have attempted to deal with primarily within the main text. I am certainly not opposed to more expansive graphical forms of representation. My notation is, in fact, quite readily convertible to Venn diagram form. For instance, consider the presentation of the Rock Cods, Sea Basses, or Groupers and their Associates grouping, 28. to 37. of the Ch.4 summary of categories. This may be re-interpreted in the form shown on the following page, where the broad degrees of similarity indicated by my multiple lines are seen in Venn terms as regions of space.



X = Rock cod, grouper, sea bass and handfish covert grouping

Y = Rock cod, grouper and sea bass covert grouping

Z = Handfish covert grouping

ZZ = Papa, Rari, Papa rari covert grouping

Pr = papa rari Pa = papa Ra = rari A = 'apuku

K = karau Ka = typical karau Kt = karau tapairu

R = ro'i T = taratara At = atea M = marau'ange

P = patuki

Figure 6: Manganian Categories of Serranidae and Cirrhitidae:

Venn Diagram

Attempting to suggest focality or typicality, and at the same time indicate the links between particular categories of two different groupings, can show up the limitations of any model dealing in less than three dimensions. Neither my own representation nor the focality- adjusted Venn diagram produced from it is able to indicate both that patuki and karau are focal to their own immediate covert groupings and that their close resemblance is of importance in establishing the wider covert grouping of groupers and handfishes. This could, perhaps, be achieved by a hybridisation of representations, by indicating with linking lines network links of similarity which extend beyond the principal similarity groupings represented in the Venn diagram, rather in the manner of Friedberg or Bulmer (eg. Bulmer, Menzies and Parker, 1975:275). It may well be the case that models in more than two dimensions, constructed on the basis of experimental similarity data, provide a more satisfying representational account of many category relationships. Yet these are unlikely to provide an alternative to basic taxonomies for ease of interpretation and ease of representation on the two-dimensional page. For practical purposes we still need representations which we recognise as crude summaries of relationships. Taxonomies suffer from having been allowed a kind, of psychological reality they did not merit. To break away from this I have provided myself with another convenient, simplifying form of representation which helps me, at any rate, to free myself from some of the assumptions that I might fall into taking the taxonomic easy way out. Naturally, there are other roads to this end.

Some Considerations of Comparative Linguistics and of Folk Zoological Universals

Within the scheme of development of Pacific languages devised by Pawley, Green and others (e.g. see Green 1966; Pawley and Green 1973) Mangaian, with other Southern Cook Is. and Society Is. languages, and New Zealand Maori, is regarded as part of the grouping of Tahitic languages stemming from Proto-Central Eastern Polynesian. But, clearly, a substantial proportion of the Mangaian vocabulary of animals can be traced back far beyond these more immediate groupings.

Looking deeply into language history, Mangaian 'manu' can be traced to the Proto-Austronesian *manuk, 'bird'. Similarly, though the compound 'mangaika' may well be a uniquely Mangaian term, the general fish category term 'ika' is traceable to the Proto-Austronesian *ikan, 'fish'. In addition, cognates of many lower-level terms can be found in non-Polynesian Austronesian languages. For example, compare:

Solomon Is., Cristobal-Malaitan

Mangaian

Group (Barnett, 1978)

<u>ume</u>	<u>Naso unicornis</u>	Unicorn fish	<u>ume</u>	<u>N. unicornis</u>
<u>ono</u>	<u>Sphyraena</u> sp.	Barracuda	<u>ono</u>	<u>Sphyraena</u> sp.
<u>anate</u>	<u>Mugil</u> sp.	Mullet	<u>kanae</u>	<u>Mugil</u> sp.
<u>gulavu</u>	<u>Cephalopholis</u> spp.	Groupers	<u>karau</u>	<u>Epinephus</u> sp.
	<u>Epinephus</u> spp.			

Substantial sets of cognate animal terms can, predictably, be found in all regions of Polynesia. Indeed, of 243 Mangaian terms recorded either in my main number sequence or as life-stage terms 99 can be regarded as

reflexes of Proto-Polynesian stems, as far as these are currently listed (Biggs, 1979; Walsh and Biggs, 1966).

For example:

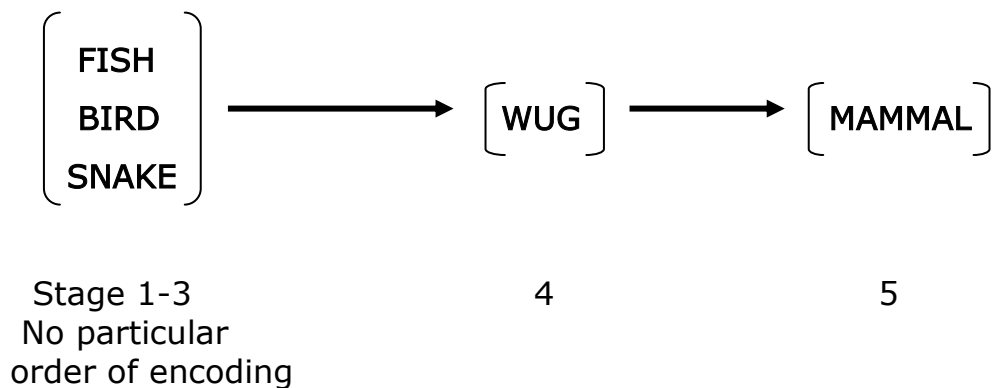
Proto-Polynesian	Proposed referent	Mangaian	Proposed referent
<u>*kaloama</u>	goatfish	<u>koama</u>	bait goatfish
<u>*lai</u>	fish sp.	<u>rai</u>	trevally spp.
<u>*maalolo</u>	flying fish	<u>maroro</u>	flying fish
<u>*'ufu</u>	parrotfish	<u>u'u</u>	parrotfish
<u>*feke</u>	octopus	<u>'eke</u>	octopus
<u>*kuku</u>	mussel	<u>kuku/</u> <u>kakuku</u>	mussel
<u>*kina</u>	sea urchin	<u>kina</u>	sea urchin
<u>*papaka</u>	'crab'	<u>papaka</u>	crab sp.
<u>*tupa</u>	land crab	<u>tupa</u>	land crab
<u>*fonu</u>	turtle	<u>'onu</u>	turtle
<u>*moko</u>	lizard	<u>moko</u>	lizard
<u>*moso</u>	bird sp.	<u>mo'omo'o</u>	spotless crake
<u>*kutu</u>	louse	<u>kutu</u>	louse and flea
<u>*huhu</u>	beetle larva	<u>'u'u</u>	boring bee

Data for the detailed comparison of the reference (denotation) of cognates is largely lacking. However, it is interesting to consider a few cases of variation of reference in cognate fish terms within the Tahitic grouping. It was, for instance, mentioned in Ch.4 that Mangaian tend to group the hand-fishes (patuki, 36.) with the groupers, and that the Mangaian covert relationship between these fish and the smaller brown-spotted groupers (28., karakarau) becomes completely explicit in the Rarotongan language where both sets of fish are types

of patuki. Conversely, Rarotongans recognise a covert grouping of surgeon-fishes, one of which is called 'api'. In Mangaian this grouping becomes explicit, all the fish being types of 'api' (Ch.4-69.). Again, Mangaian acknowledge a relationship between the parrotfishes and wrasses, the pa'oro (Ch.4-47.) being prominent among the latter. In Tahitian the cognate 'pahoro' is applied not to wrasses but to certain parrotfish species (Bagnis et al., 1972:153-9). Obviously, the changes of reference in the evolution of cognate terms were not arbitrary. Perceptions of similarity were involved, perceptions which in these cases seem to be shared by modern populations. It appears that variation in the reference of cognates in closely related languages providing terms for a very similar faunal set may, at least in some instances, be related to the covert groupings of the language users, rather as Hays (1976) relates individual variation to such covert categories. (Though, of course, I recognise that in making this analogy I skip over many of the complexities of the historical dimension.)

A number of recent studies (e.g. Brown, 1977; 1979a; 1979b; 1980; Witowski and Brown, 1978) have considered the developmental sequence for the encoding of folk biolo 'life-forms' in the history of language families. Brown (1979a:791-2) identifies five universal folk zoological 'life-forms' (generally conforming to Berlin, Breedlove and Raven's 1973 criteria, pervasive, broad groupings based on gross morphology). These are 'fish', 'bird', 'snake', 'wug' (residual small animal), and 'mammal' (residual large animal), the full extension of which varies from language to language but which share foci.

Brown proposes that these are added to languages in the fixed order:



He further proposes that there is a general tendency in the history of all languages towards the increase of 'life-form' terminology, the increase in the 'life-form' lexicon being correlated with increasing societal complexity (Brown, 1979a:804-5). This process is assumed to reflect the greater usefulness and salience of the more general 'ife-forms' in societies where the scale of practical interactions with the natural world has been reduced.

In one paper Brown (1980) has specifically set out to examine the 'life-forms' of the Polynesian language family. The reconstructed 'fish' term for Proto-Polynesian is *ika. Comparison of reflexes suggests a focus on true fish, though Brown (1980:8-9) concedes that the term might have had a referential range extended to take in other sea creatures, as do many of its reflexes in the daughter languages. Mangaian 'mangaika/ika' shows such extended reference, encompassing cetaceans and turtles.

Many of the reflexes of Proto-Polynesian *manu, 'bird', also show an extension of reference beyond true birds to non-sea creatures in general. Brown (1980:12-13) argues that such expansion would bring about a condition of polysemy with *manu meaning both 'bird' and 'nonsea creature', the 'bird' meaning later being distinguished by the creation of compounds based on *manu. The Mangaian case accords well with this

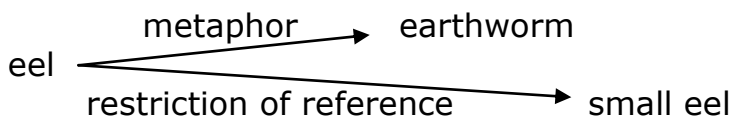
suggested scheme 'manu' being used to refer both to the 'birds and bats' grouping and to a more inclusive land animal grouping. In addition the 'bird and bats' reference can be disambiguated by the use of the compound 'manu rere', 'flying manu'. The extension of *manu to cover non-sea creatures may be related to the relative prominence of the birds, focal manu, in relatively sparse (larger-) land-animal faunas (Brown, 1980:11). The prominence of the birds must have been especially evident on Mangaia where the pig and dog, known in many other parts of Polynesia were, apparently, absent.

Also absent from Mangaia, as from all but the outliers of Polynesia, were snakes. This, Brown reasonably contends (1980:15) accounts for the loss of a 'snake' 'life-form' term, which would otherwise seem to contradict the general tendency he proposes for the increase of 'life-forms' in language history. The reflexes of the Proto-Polynesian *ngata , 'snake', have in many languages shifted reference, often to some relatively elongated animal. The Mangaian ngata (Ch.5-2.) is a sea-cucumber. The only snake term now known on Mangaia, other than the English, is the Biblical 'snake', 'ovi', a missionary coinage from the Greek, 'ophis'. There is, however, the 'small elongated creature' term, 'toke', 'worm', which is to be found in several other Eastern Polynesian languages. This apparently derives from the Proto-Polynesian *toke, 'sea eel/conger eel'. Brown (1980:19-20) suggests that competition between reflexes of *toke and *pusi for the 'sea eel' semantic space promoted a shift of meaning for Proto-Eastern Polynesian *toke, by metaphor, to earthworms. The Mangaian reflex of *pusi is the conger eel term 'pu'i' (Ch.4-95.). It is therefore interesting to note that the Mangaian term for the supposed juveniles of conger eels (in fact pearlfishes) is 'toketoke pu'i', which modern Mangaians spoke of in such a way as to suggest the metaphorical

extension of a worm term to an 'eel'. If taken literally that would suggest the development:



Perhaps more likely is:



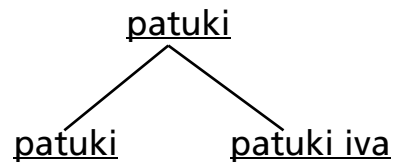
Or even, possibly:



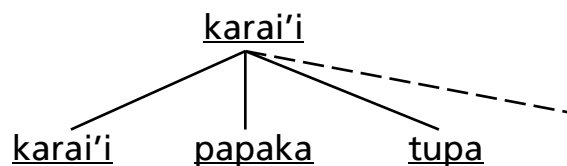
No 'wug' (residual small animal' term has been reconstructed with certainty for Proto-Polynesian. However 'manumanu', is shared by a number of Tahitic languages, including Manganian. Noting its absence in the geographically most isolated Tahitic language, Maori, Brown (1980:22) suggests that it is likely to be a later diffused term as to have been represented in Proto-Tahitic. Manganian also has the descriptive small animal term 'manu rikiriki' but, like other Polynesian languages, a 'mammal' term is lacking. It therefore falls into stage 4 (as opposed to the stage 3 of Proto-Polynesian) of Brown's 'life-form' term acquisition sequence, having 'fish' and 'bird', having lost 'snake' due to faunal impoverishment but gained 'worm' and 'wug' terms. In what sense it can be said to have regained a 'life-form' term in 'ovi', the Biblical 'snake', is, I think, a moot point.

Turning to other proposed universal principles of development in ethnobiological nomenclature, Berlin (1972) has stressed the primacy of his 'generics' in the evolution of terminology and has indicated patterns of polysemy which suggest the derivation of both 'life-forms' and 'specifics'

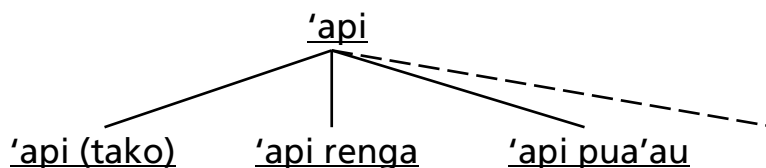
from 'generics'. Similar patterns of polysemy can be seen in Manganian. Thus, Berlin might represent Manganian handfish categories in the form:



with the presence of the unmarked 'patuki' on the second level providing an instance of type-specific-generic polysemy (the most typical folk 'species' sharing the 'generic' term and being derived from the division of the 'generic'). On the other hand, the crab categories:



could be seen as an instance of generic-super-generic polysemy, the latter being derived from the former, 'karai'i' expanding its reference. But, some other cases are more complex. The surgeon-fish categories:



would initially appear to be a simple case of type-specific-generic polysemy (the optional attributive 'tako' being a later addition to the type-specific 'term'). This suggests that the lower level categories were arrived at by the systematic division of the upper level category. However, consideration of other Eastern Polynesian surgeonfish terminologies

suggests that this may not have been the case. Cognates of 'api' are restricted in reference to the same single species ('api pua'au of Mangaia) in both Tahitian and Hawaiian (Bagnis et al., 1972; Titcomb, 1972) and might be regarded as generic terms on Berlin's principles. These languages also share with Rarotongan cognates of a generic term 'maito' referring to some of the surgeonfish identified as 'api' by Mangaians. It would appear that, according to the principles relating a category's rank to the structure of its labelling lexeme, Mangaians must have replaced certain 'generics' with 'specifics' and that what now appears to be the 'generic' 'api' was, in fact, derived from what now appears to be the 'specific' 'api' (though in the initial state of the terminology this would have appeared to be a 'generic'!). The indicators are that 'api' has undergone an extension of reference. A full examination of this case would lead to consideration of the arbitrary elements in described taxonomic ranks and of the difficulty of associating particular lexeme structures with psychological ranking principles related to the actual inclusiveness of categories.

A Note Concerning Some Other Ethnozoological Publications.

Considering the prominence of fish and sea-creatures in the Mangaian natural environment and their consequent prominence in this thesis, brief reference to two other works specifically concerned with ethnoichthyology seems in order. Anderson's (1972) study of the categories of marine creatures among the Hong Kong Boat People presents the classification in terms of simple hierarchic taxonomies stemming from six 'first level' terms for the strictly marine groups. In general, more broader (higher level) groupings are made explicit by

labelling than is the case with Manganian. Anderson's 'first level' (1972:57) has terms not only for 'fish', 'lobsters and prawns', and for 'crabs', but also for 'snail' (various univalves), 'oyster', and 'clam/bivalve'. It is tempting to see the greater number of higher order terms amongst the Boat People as reflecting some sort of evolutionary development associated with relative societal complexity. However, it is also evident that the Boat People are still very much in touch with their marine environment. Without knowing in what speaking contexts the categories expressed in particular terms are made relevant, and without a much fuller understanding of the natural and social contexts which favour different strategies for the expression of category relatedness (e.g. 'X is like Y' or 'X is of the family of Y' as opposed to 'X and Y are kinds of Z') it is extremely difficult to assess the real significance of these differences.

Anderson (1972:64-72) also indicates a variety of cross-cutting categories applied to sea-creatures. These include categories dependent upon the catching methods employed, upon special ritual or religious status, upon practical use, and upon price. In addition, he presents a number of life-stage sequences. These differ from Manganian sequences and, as Anderson (1972:77) points out, from Tahitian sequences, in that the Cantonese has a superordinate used in conjunction with the life stage terms. A fish's 'name' and its life-stage terms are distinct, whereas in the Polynesian languages there are only the life-stage terms, though one of them may dominate when talking generally of the fish. Anderson notes the importance of distinguishing life-stages in the sorting and pricing of fish for sale. This has not been a major concern on Mangaia where the sale of fish is a comparatively recent and limited phenomenon. However, it is not impossible that the sorting for post-fishing distribution of catch contributed to the importance of life-stage categorisation. On the other hand, it is evident that such categories may play a significant role in the

actual planning of fishing activity, a point made very clearly in recent work by Akimichi (1978:311).

Akimichi's description of Lau (Solomon Islands) ethnoichthyology focuses especially upon those categories relating to fish ecology and behaviour which can be seen as instrumental in the conceptualisation and planning of actual exploitation of marine resources. He provides lists of categories relating to habitat and feeding behaviour, escape behaviour, spawning behaviour, swimming layers (customary depths), and schooling patterns, all of which have a direct relevance to the activities of the Lau fishermen. As presented by Akimichi, these sets of categories are rather more extensive and systematic than any proposed by my Manganian informants. Yet, they clearly embody much the same kind of information that Manganian fishermen bring to bear on the taking of particular fish, the kind of information that I have sketched in individual entries. Clearly, there are spatial and temporal dimensions to both Lau and Manganian fishing which mirror, and are seen by the local people as mirroring, the structure of and periodic changes within the local ecosystems.

Leaving ethnoichthyology and turning to the perennial problems of the relationship between the diversity of animal species as reflected in scientific classification and the diversity as indicated in the languages of indigenous peoples, I would like to make reference to Ellen's (1976) paper concerning the I classificatory response to the restricted terrestrial fauna of Seram. His findings relating to vertebrates lead to the conclusion that, though there is not a simple correspondence between folk taxa and zoological species, the hypothesis that a restricted fauna will be reflected in limited folk inventories is upheld, in contradiction of the hypothesis that terminologies will become elaborated in proportion to the cultural importance of their referents. The Manganian case, with the very restricted terrestrial vertebrate fauna being reflected in a very limited terminology,

would seem to conform to such findings. Though specifying many of the difficulties inherent in trying to associate the vague concept of 'significance' with the under- or over-differentiation of categories, Ellen (1976:Fig.4) does attempt to chart such relationships for Nuaulu land vertebrate categories. Most striking is the high correlation of over-differentiation with low cultural significance, in direct contradiction of the expectations deriving from the work of Berlin, Breedlove and Raven (1966). It is also unlike the pattern encountered on Mangaia where over-differentiation is very rare. If minimal cultural significance is equated with the minimum of activity oriented towards an entity, then it would appear that in the Mangaian case the creatures of minimal cultural significance, the majority of the small-life listed in Ch.7, are also those categorised with the maximum of under-differentiation. Ellen proposes that a certain absence of consensus, a certain freedom in applying loose labels to peripherally significant species may, in part, account for the over-differentiation of snakes and lizards of marginal utilitarian importance. I cannot find precise parallels in the Mangaian treatment of small-life categories. However, since the bulk of these are insects, many other factors are in play (small size, lack of graded morphological or colour variation etc.). All this merely points up, as Ellen intends, the dangers of overly simple interpretations of the significance of degrees of category correspondence.

Noting briefly some recent publications relating to the relationship of animal classification and animal symbolism, I would point to Morris's (1979:126-7) conclusion that Navaho natural taxonomies and symbolic taxonomy are relatively independent, the second drawing upon only selected elements of the first for integration into a 'master plan'. This kind of selectivity for incorporation into broader symbolic schema we have also seen in the Mangaian data. Hunn's (1979) redefinition of anomaly in

terms of the existence of empirically infrequent trait complexes (as against the existence of creatures infringing some aspect of a culturally defined classificatory schema) does not materially affect any of my observations upon specific instances. The Mangaian turtle can equally well be seen as empirically singular, standing out from other known creatures, as contradicting some rule governing the expected form of mangaika. Indeed, I have tended to view it in terms of its untypicality.

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